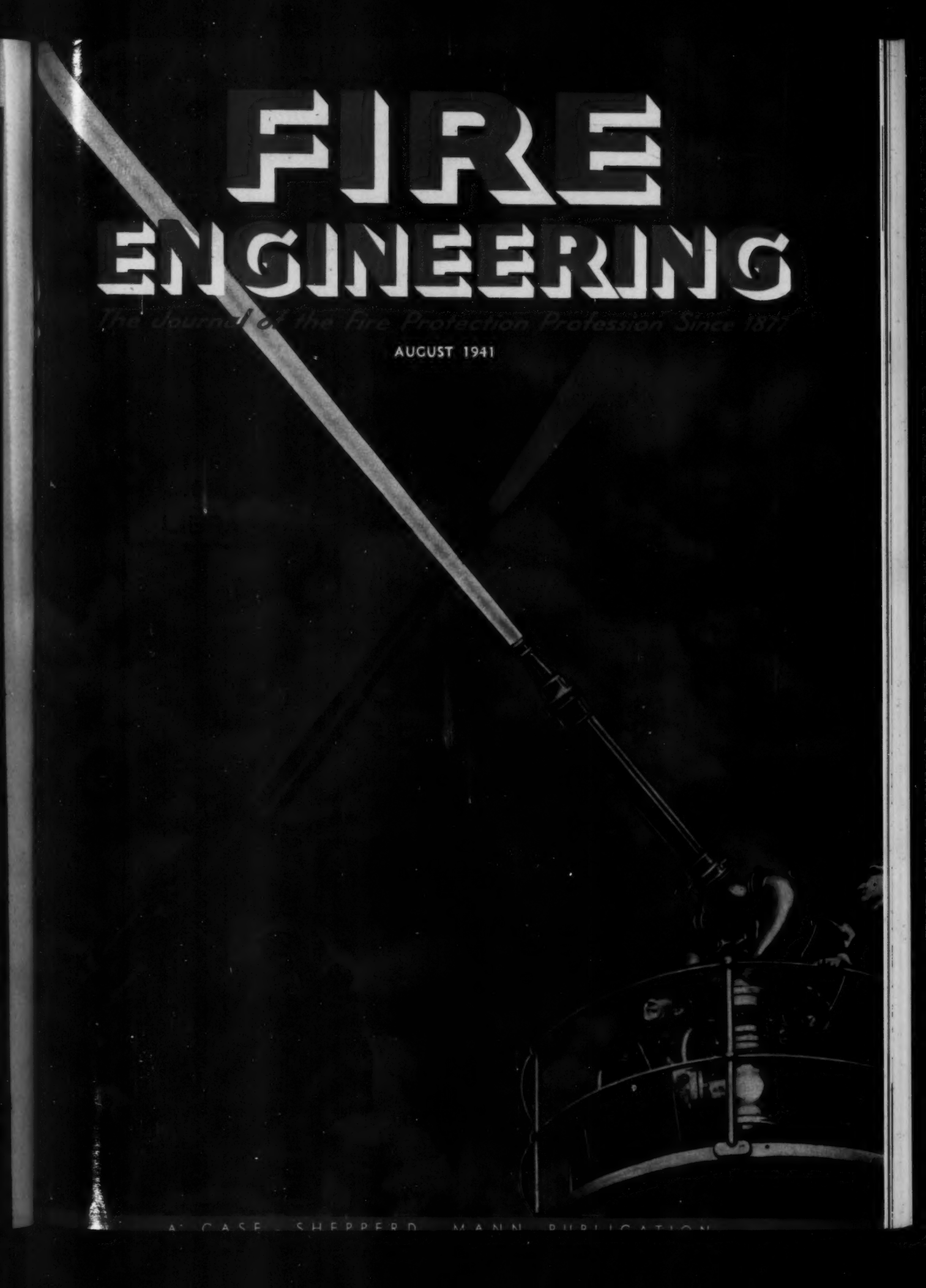
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

AUGUST 1941



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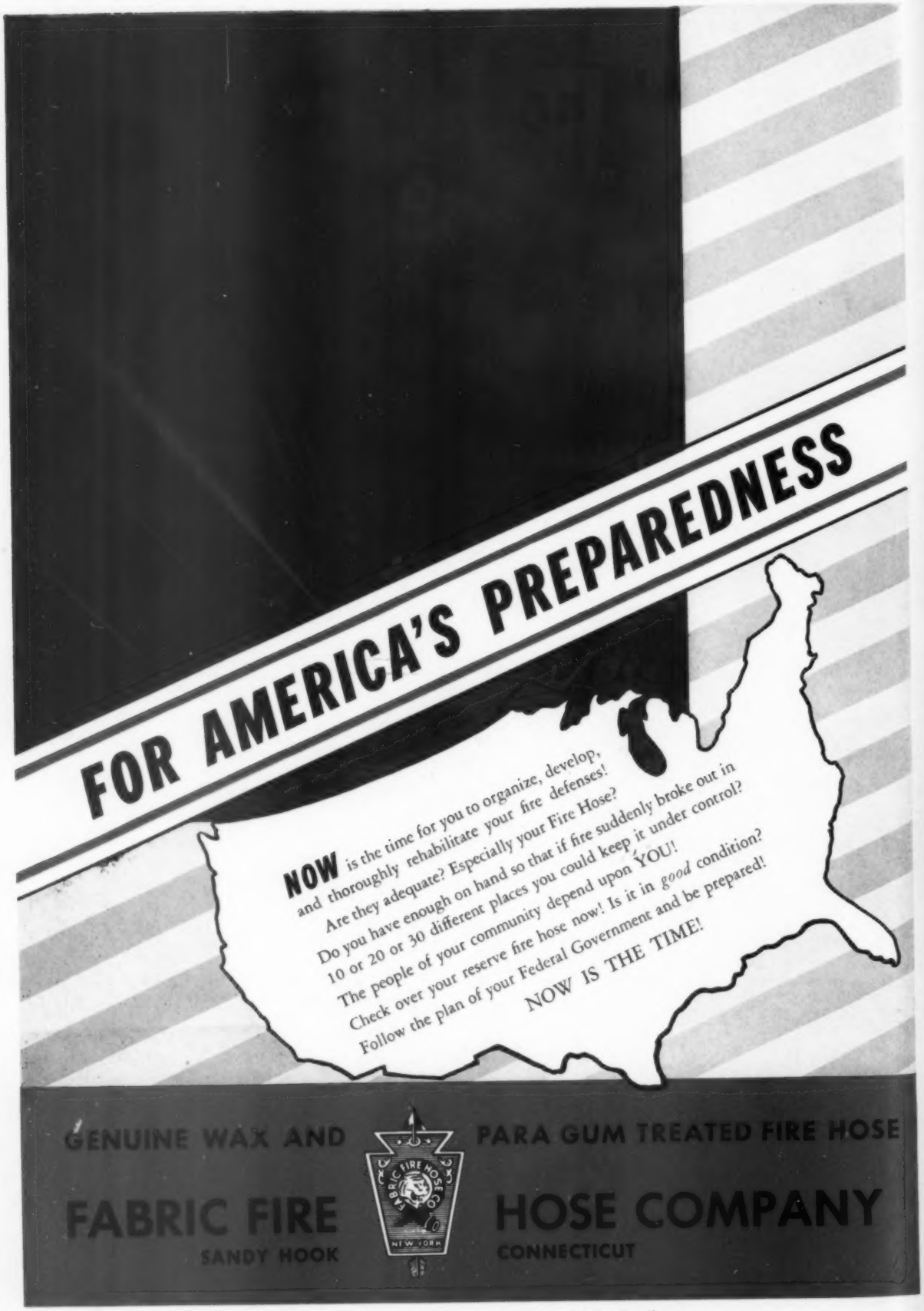
FOR AMERICA'S PREPAREDNESS
NOW is the time for you to organize, develop, and thoroughly rehabilitate your fire defenses!
Are they adequate? Especially your Fire Hose?
Do you have enough on hand so that if fire suddenly broke out in 10 or 20 or 30 different places you could keep it under control?
The people of your community depend upon YOU!
Check over your reserve fire hose now! Is it in good condition?
Follow the plan of your Federal Government and be prepared!
NOW IS THE TIME!
GENUINE WAX AND PARA GUM TREATED FIRE HOSE
FABRIC FIRE HOSE COMPANY
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Improve Your Safety Record

WITH A **FEDERAL**

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MODEL C-6

Motorists and pedestrians are instantly warned by FEDERAL Traffik-King Sirens. They combine a distinctive and powerful tone roar with an oscillating brilliant red light beam. Visible and audible signals may be operated independently, or together. Model C-6 (shown above) will coast over two minutes.

A FEDERAL Traffik-King Siren is used on this 750-gal. pumper at Zanesville, Ohio

***Free* DEMONSTRATION!**

Write today on your official stationery for particulars.

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"SIREN HEADQUARTERS"

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FIRE ENGINEERING

A Consolidation of Fire and Water Engineering, The Fire Engineer and Fire Protection

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FRED SHEPPERD
Editor
N. H. WOLPERT, *Assistant Editor*

This Issue

A RECORD! Yes, this issue of FIRE ENGINEERING establishes a record—hits a new high in several respects.

● First—a glance at the Table of Contents indicates that the high quality and practical importance of the editorial material on "Defense Problems", in this issue, will make it of greater value to the country as a whole than any single issue ever published in all our 64 years of service to the field.

● Second—the extent to which manufacturers, with an all-time record of well over sixty pages of advertising, are using FIRE ENGINEERING to improve *present* business relations and to help develop *future* business, makes this a noteworthy issue.

● Third—the prestige of FIRE ENGINEERING and the scope of its "coverage" among fire protection leaders throughout the country has never been so great.

We are indeed grateful that we have had the opportunity to serve our field so widely and so effectively.

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877: published on the tenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York City, also publishers of *Water Works Engineering, Sewage Works Engineering,* etc. ¶Subscription price U.S. and Latin America, $2 a year; Canada, $2.50; Foreign, $3: Single copies, 25c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879.

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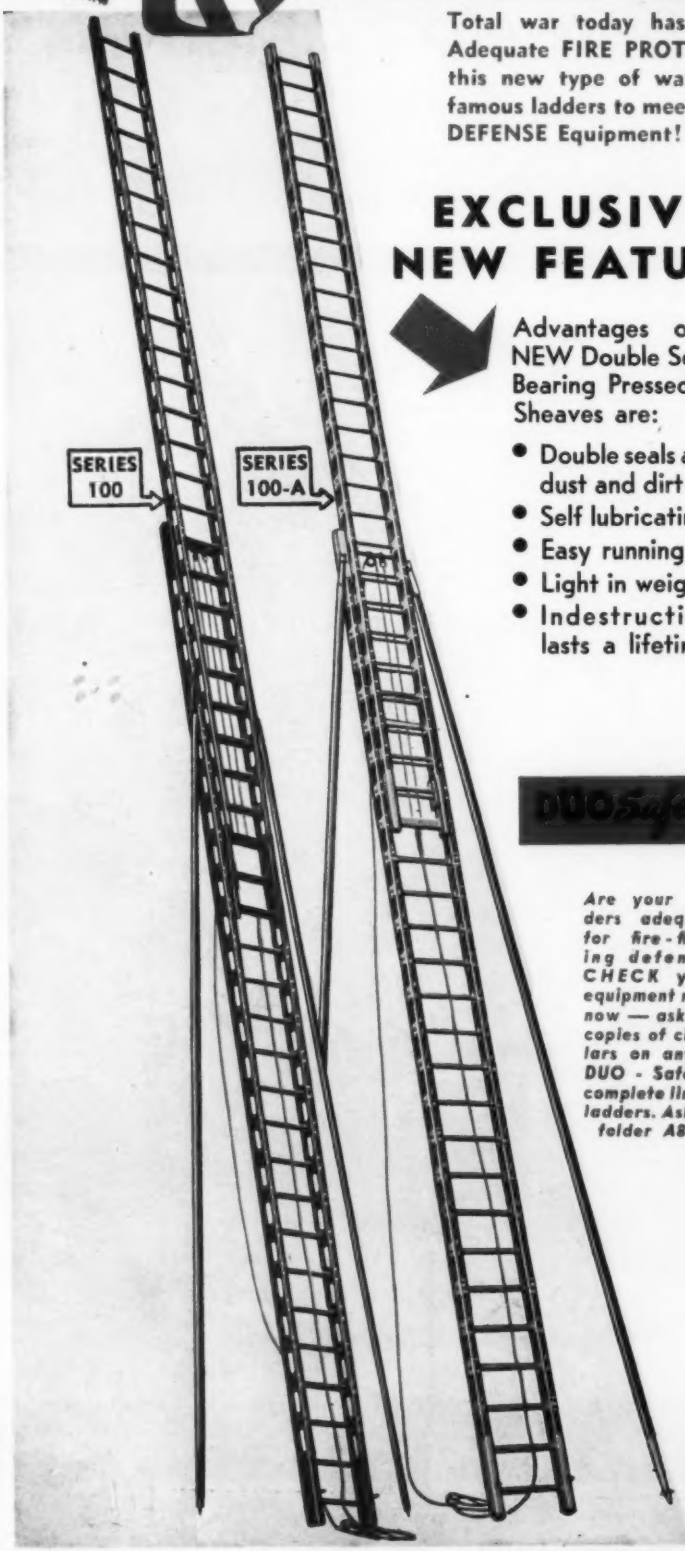
The Fullest Measure of Safety

Total war today has necessitated the invention of total defense! Adequate FIRE PROTECTION is playing an extremely VITAL role in this new type of warfare. DUO-Safety offers this complete line of famous ladders to meet all demands for adequate, efficient Fire-Fighting DEFENSE Equipment!



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Are your ladders adequate for fire-fighting defense? CHECK your equipment right now — ask for copies of circulars on any of DUO - Safety's complete line of ladders. Ask for folder A841!

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  2-section, 3-section, Wall and Roof
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  Solid side and Truss type
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  For indoor use—a great space saver!
- **COMPO LINE** (Wood and Aluminum)
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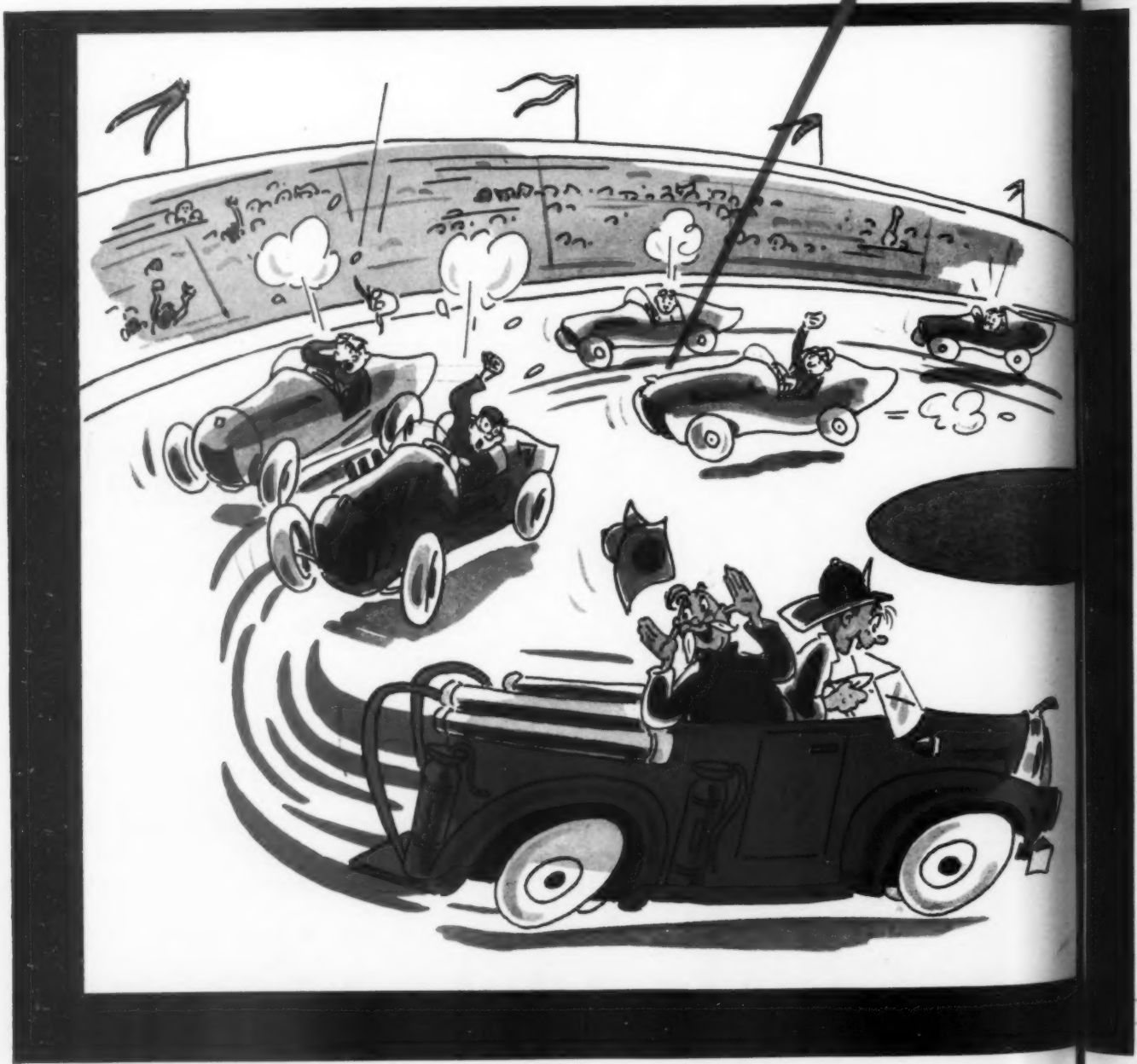

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st *on their laurels!"*

IT is no small fact in favor of Mack that it is so consistently out in front in performance. Officials and firemen have come to count on Mack to do its job as well as the job can be done —on the road and on the firing line—in year after year of grueling service.

The superior performance and stamina of Mack fire apparatus are the purposeful result of the method by which they are manufactured. For Mack concentrates on the building of vital parts *in its own factories*, and exercises the most rigorous control over the metallurgy and machining of parts.

Mack, which has the largest resources in the industry, also maintains a unique large-scale research program—to make sure Mack design and quality stay unsurpassed.

Mack Type 80, 750-gallon triple combination pumper recently delivered to fire department of New Hyde Park, N. Y.

Mack's 70 conveniently located direct factory branches provide quick, economical service when needed—make it easy to keep Macks in fighting trim. Write for complete information on this superior fire apparatus today!

MACK MANUFACTURING CORPORATION
FIRE ENGINE DIVISION, NEW YORK, N. Y.

The Mack Fire Apparatus line includes triple and quadruple pumpers from 200 to 1500 gallon capacity, hose wagons, city service ladder trucks, squad cars — comprising 14 distinct and specialized models. Mack is proud of building the best. We invite comparison. We solicit inquiries.

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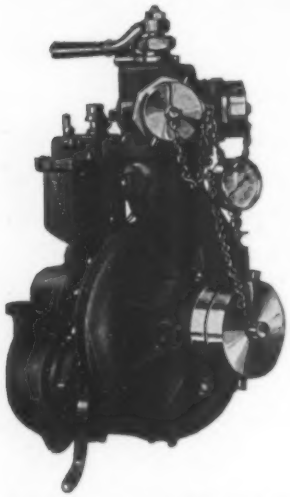
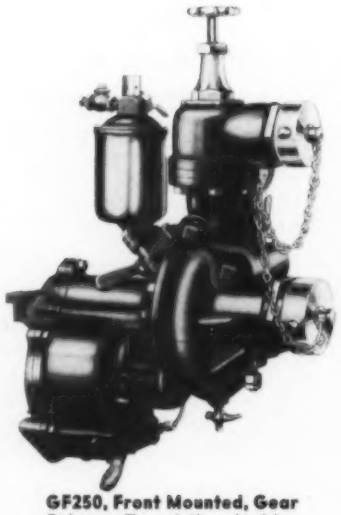
BARTON-AM

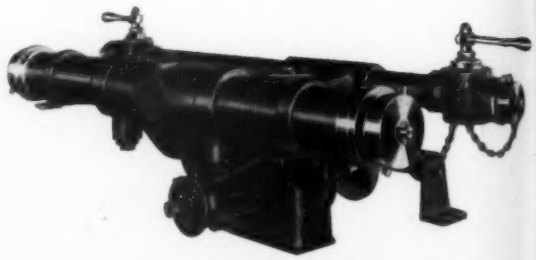
CENTRIFUGAL FIR



U-Type, Front Mounted, Gear Driven, Low Engine Speeds. Sizes from 350 to 600 GPM.

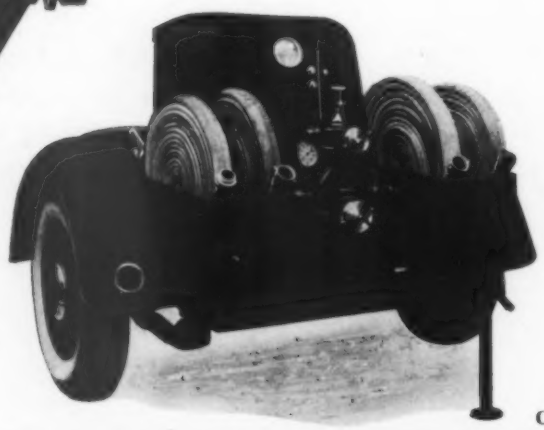


GF250, Front Mounted, Gear Driven. Especially suited for rural communities. Capacity 250 GPM.

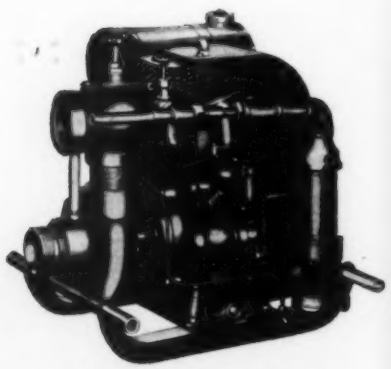


Type UM, Midship Mounted, Single Stage, Gear Driven. Sizes 500 and 600 GPM.

F-Type, Front Mounted, Direct Driven. Sizes from 350 to 600 GPM.



Trailer Fire Pump Unit. Equipped with time-tested Front Mounted pumps as shown above. Sizes 100 to 600 GPM.



Type X, Booster Tank Filler. Portable, quick self-priming with vacuum primer. Sizes up to 500 GPM.

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Pumps—and pumps

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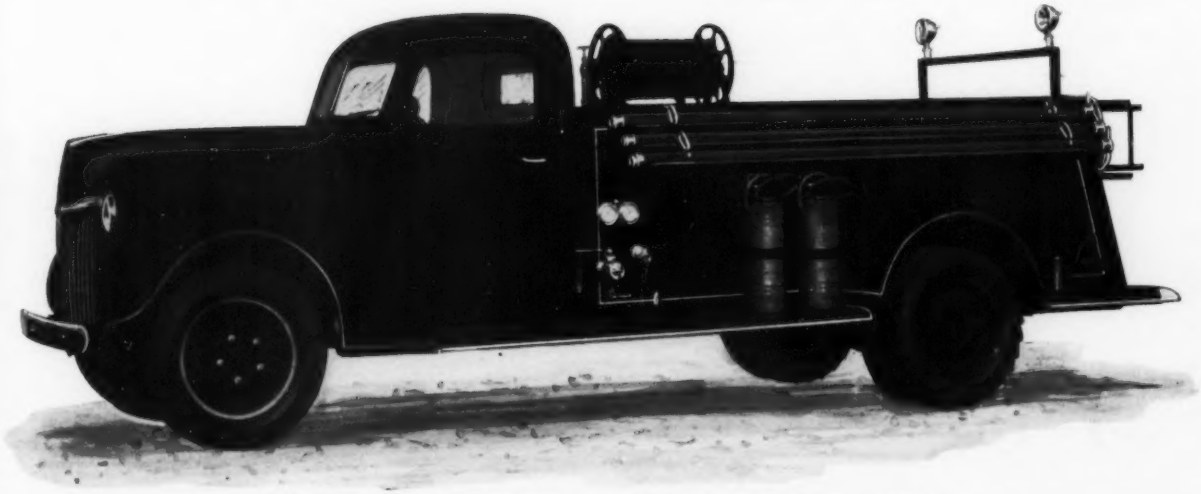
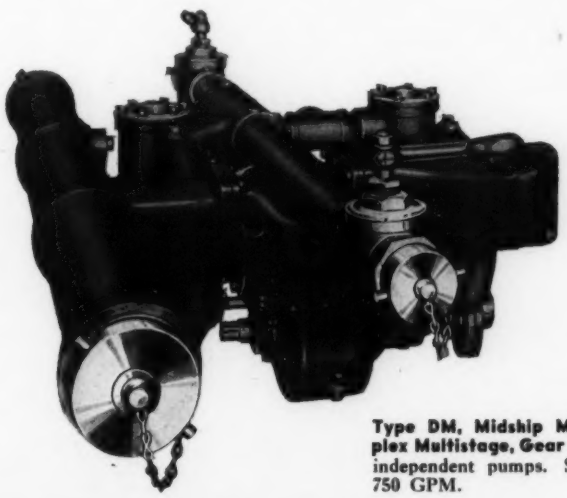


TYPICAL BARTON-AMERICAN TRUCK-MOUNTED FIRE PUMP

Type XF, Portable Fire Pump. Self-priming. Capacities up to 70 GPM against pressures up to 125 pounds. Weight only 125 pounds.



Type DM, Midship Mounted, Duplex Multistage, Gear Driven. Two independent pumps. Sizes 500 to 750 GPM.

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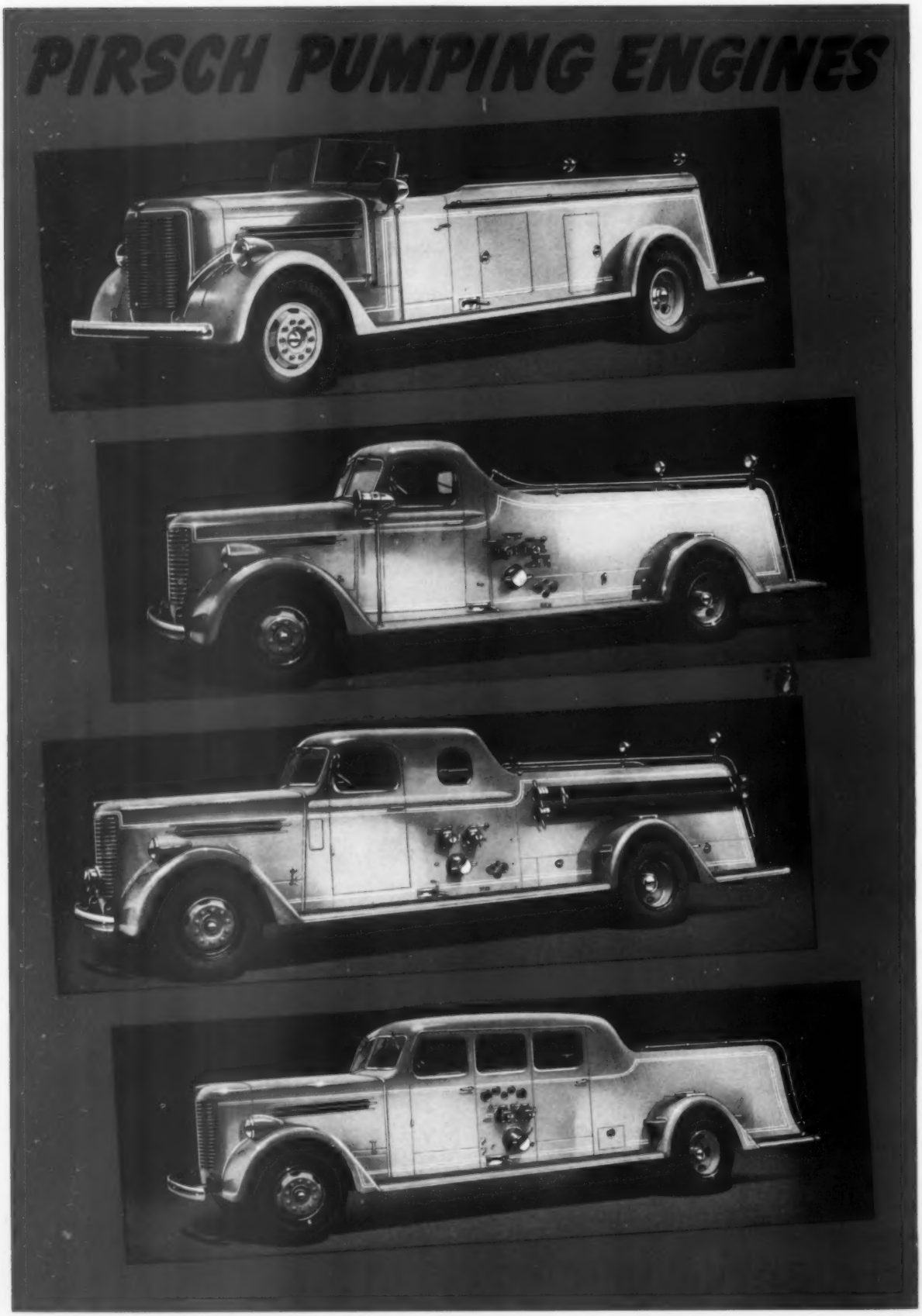
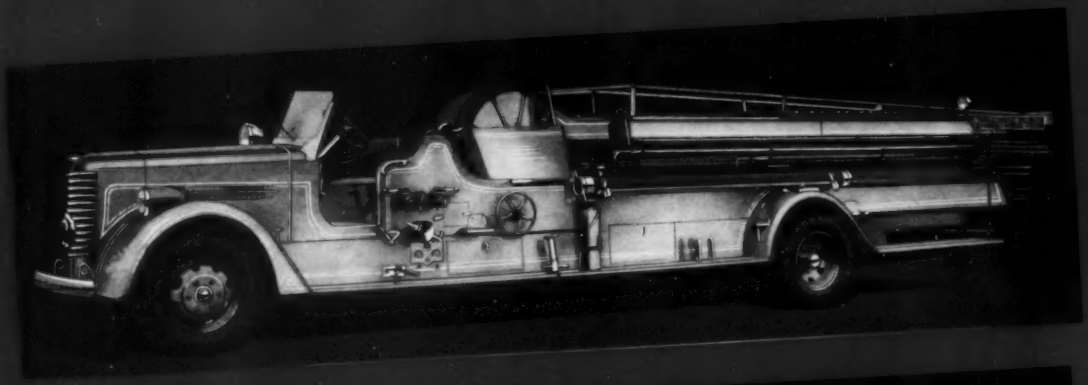
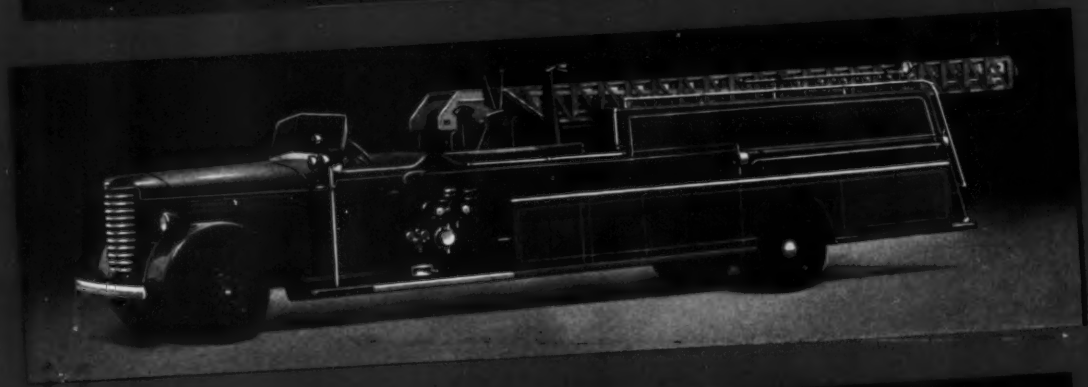
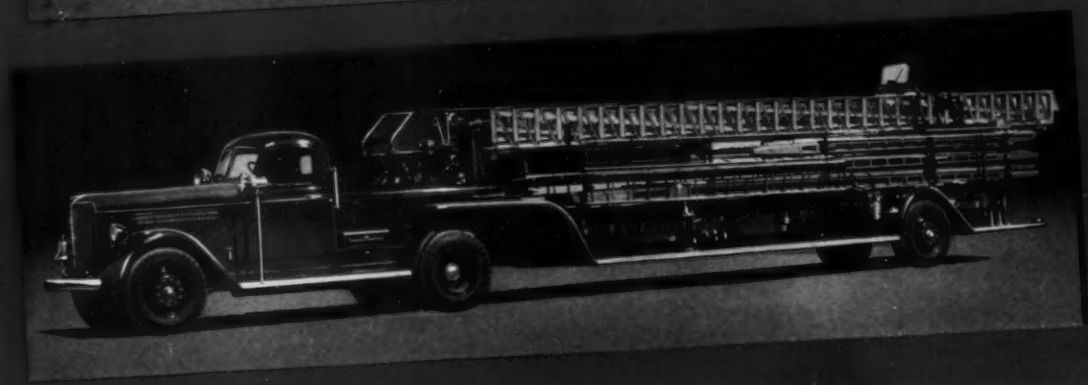

PIRSCH PUMPING ENGINES

PIRSCH AERIAL LADDER TRUCKS







Pirsch aerial ladder trucks and Pirsch pumping engines are built in a wide range of styles and sizes to fit the requirements of the modern fire department. They are outstanding in design and performance being powered with engines of sufficient size to provide great pumping reserve and with proper torque output to give the type of road performance needed when lives and property are at stake.

Pirsch pioneered many new devices for fire service which are now considered standard equipment. The first American all-powered aerial ladder truck was built by Pirsch more than ten years ago; Pirsch also built America's first 100' aerial ladder.

PETER PIRSCH & SONS CO., KENOSHA, WIS.

The GAMEWELL VIGILARM is MODERN, AUTOMATIC FIRE DETECTION at its best!

Automatically

- **DISCOVERS** Fire
- **WARNS** Building Occupants
- **SUMMONS** the Fire Department

Under Continuous Electrical Supervision

The Vigilarm FIRE Detecting System . . .

Fully Protects Any Type of Building or Office

Municipal authorities and Fire Department officials know that proper fire *detection* is the best fire *protection*. They also know the unsurpassed record of The Gamewell Company—since 1851, America's leading designer and manufacturer of fire alarm equipment. So it is natural that they turn to Gamewell for the newest, most scientific methods of automatic fire detection.*

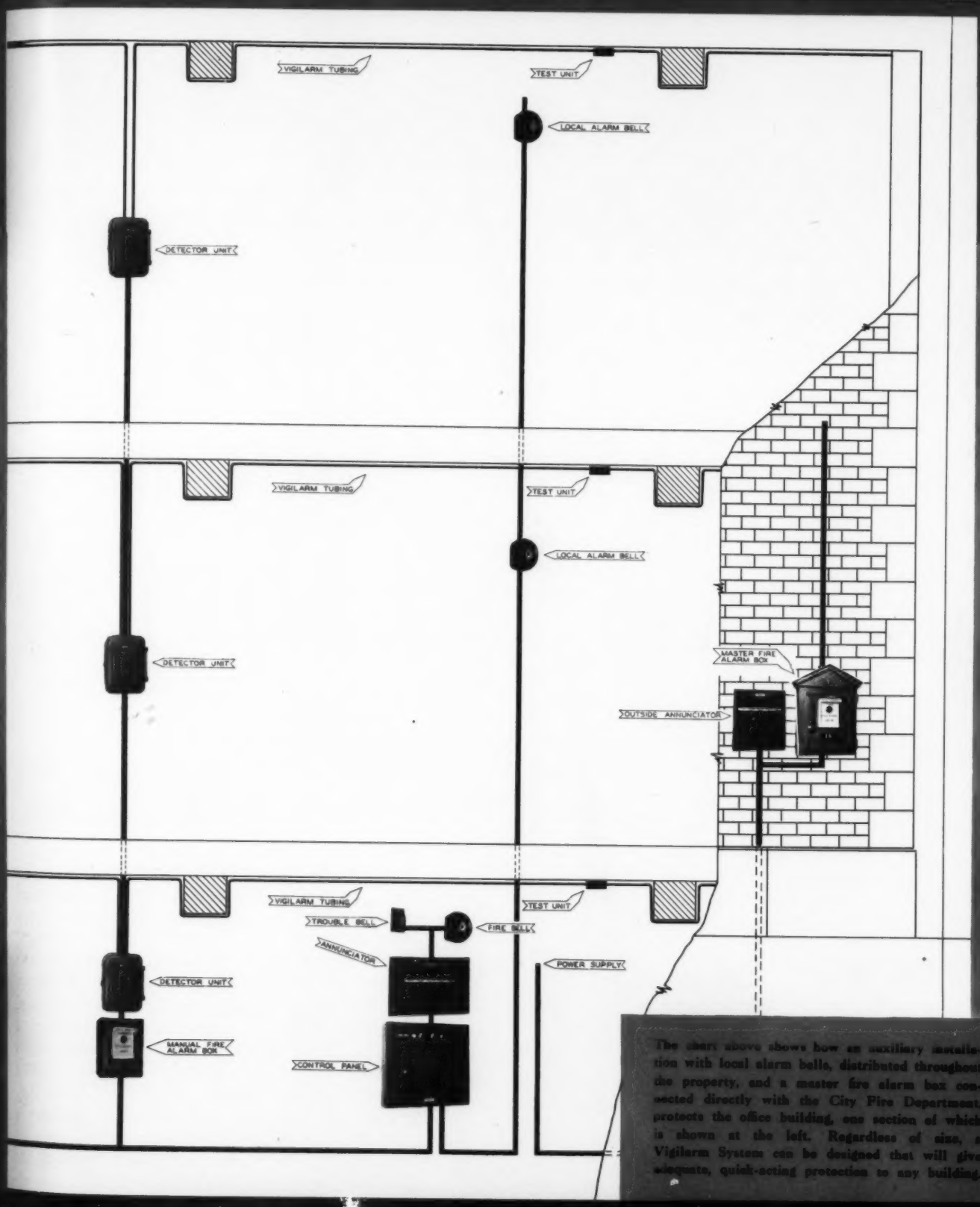
Latest in the long line of Gamewell successes is the Vigilarm system of automatic fire detection—which discovers and announces fire in a matter of *seconds*. Vigilarm catches the first small blaze—proclaims it loudly to occupants and Fire Department—*before* the tiny flame can become a great conflagration.

The "nervous system" of the Vigilarm—highly sensitive along a continuous line of copper tubing—instantly detects the presence of abnormal heat and transmits it to the "brain"—the Vigilarm Detector Unit. This unit creates a local warning and then, if the danger continues, summons the Fire Department through its connection with the municipal fire alarm system. *Exclusive* with Vigilarm, this dual protection feature contributes to greater effectiveness and sensitivity.

Another Vigilarm *exclusive* is the constant, automatic supervision of the pneumatic fire detecting element—the tubing. Any break in a tubing loop or in the electric alarm circuit is instantly announced. And the system may be manually tested by simply moving a switch—without starting test fires or disrupting ordinary activities.

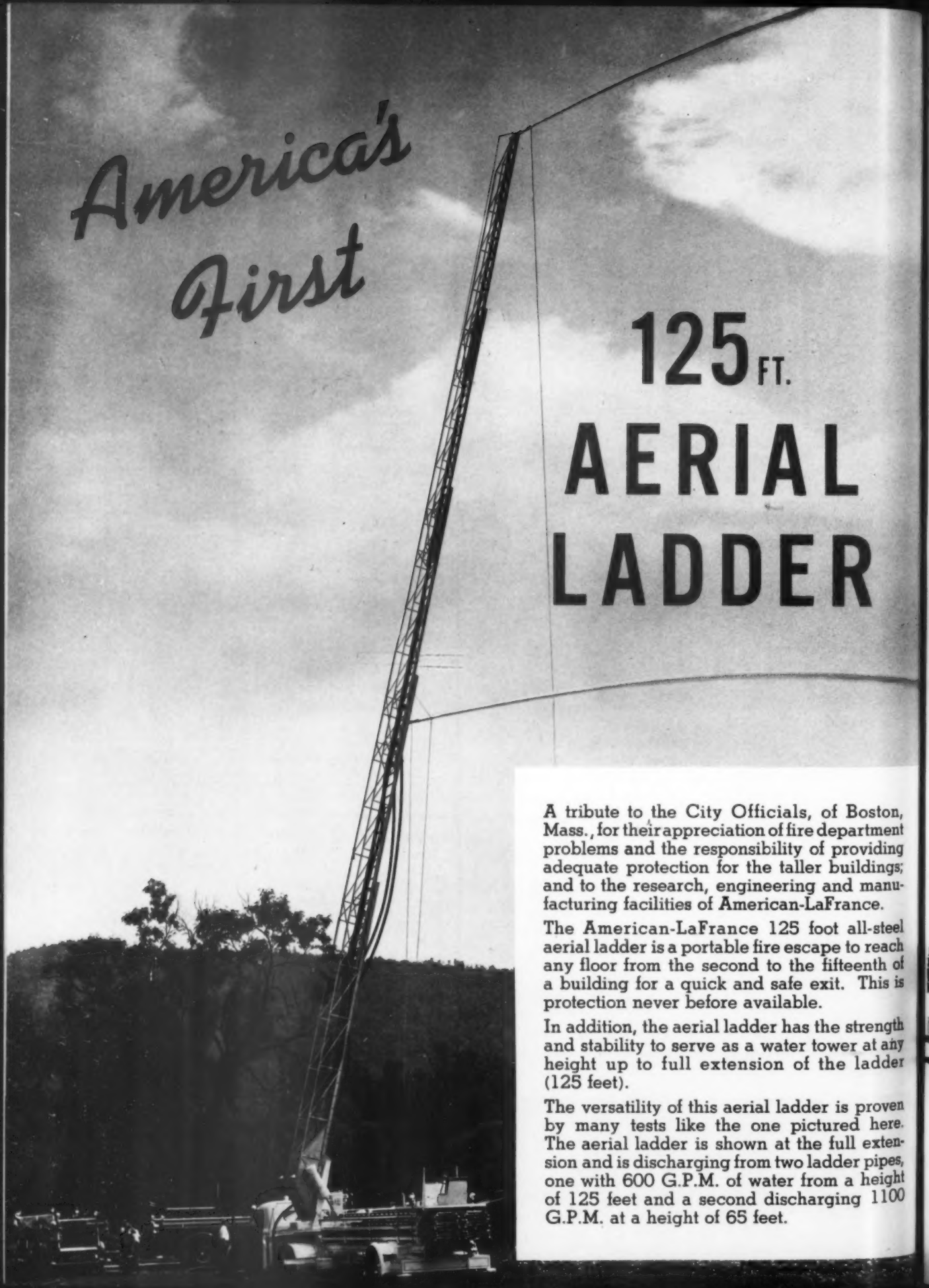
Your request for information will receive prompt, individual attention.

* Striking proof of Gamewell's remarkable acceptance is the fact that 90% of all municipal fire alarm systems in the United States are Gamewell systems.



The chart above shows how an auxiliary installation with local alarm bells, distributed throughout the property, and a master fire alarm box connected directly with the City Fire Department, protects the office building, one section of which is shown at the left. Regardless of size, a Vigilarm System can be designed that will give adequate, quick-acting protection to any building.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS, MASS.



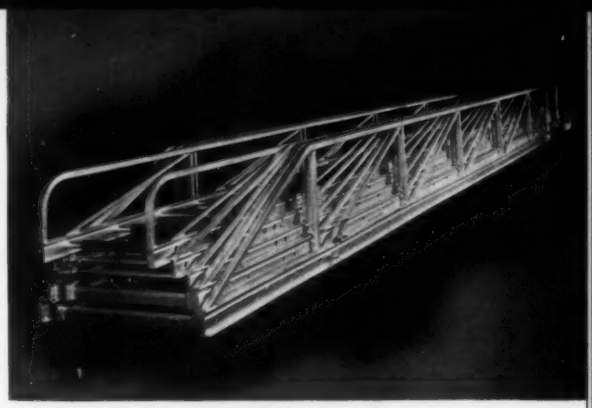
A tribute to the City Officials, of Boston, Mass., for their appreciation of fire department problems and the responsibility of providing adequate protection for the taller buildings; and to the research, engineering and manufacturing facilities of American-LaFrance.

The American-LaFrance 125 foot all-steel aerial ladder is a portable fire escape to reach any floor from the second to the fifteenth of a building for a quick and safe exit. This is protection never before available.

In addition, the aerial ladder has the strength and stability to serve as a water tower at any height up to full extension of the ladder (125 feet).

The versatility of this aerial ladder is proven by many tests like the one pictured here. The aerial ladder is shown at the full extension and is discharging from two ladder pipes, one with 600 G.P.M. of water from a height of 125 feet and a second discharging 1100 G.P.M. at a height of 65 feet.

Your Safety



125 FT. ALL STEEL AERIAL LADDER

Is assured by the all-steel aerial ladder. Each section completely fabricated from high strength alloy-steel, electrically welded to form a homogenous structure—without rivets and without heat treatment.

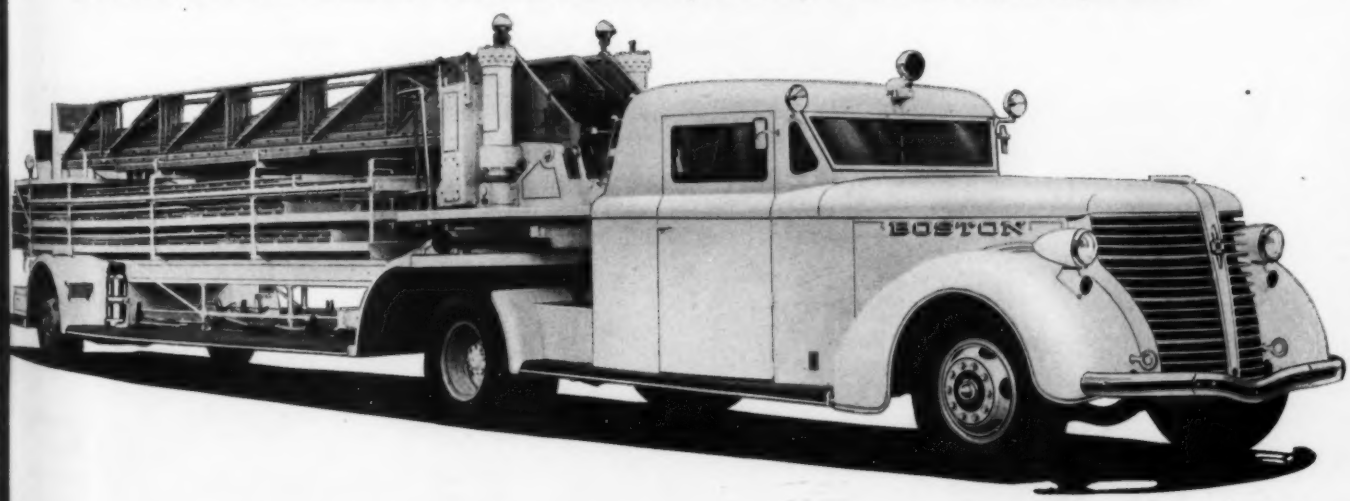
Double cables on every section assure double the usual factors of safety, and they are always automatically safe.

Smooth, silent, and swift operation, by hydraulic power with one man control for all operations is provided. The three ladder controls raising, extension and rotation are spring loaded automatic return type, indirectly lighted for night operation and provided with stops at limit of ladder travel.

Narrow streets and traffic density makes manouverability of extreme importance, and this 125 foot America La France aerial ladder truck meets all requirements with extreme ease. The overall length is only 53 feet 7 inches, which is 10 feet shorter than an 85 foot wood aerial ladder truck so that less space is required for housing.

Dependable and ample power for operating the aerial ladder, and for all highway operation is assured by the 240 B.H.P. V-12 motor. Thoroughly proven by 11 years of fire department service, this V-12 trouble free motor has no equal.

Be sure and see American's First 125 foot Aerial Ladder at the I.A.F.C. Convention in Boston where it will be on exhibition and demonstrated by courtesy of the Boston Fire Department.



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ELMIRA, NEW YORK, U. S. A.

New Ladder Pipe

Over 20 years of "FIRSTS"

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Design and Manufacture of Fire Protection Appliances

AKRON

NEW ENGLAND DISTRIBUTOR
Boston Coupling Company
293 Congress St., Boston, Mass.

Today with so much emphasis being placed on 100% protection against all possible emergencies, Fire Departments demand the rugged dependability that has been built into AKRON Brass products for over 20 years.

Illustrated are but a few of the wide range of AKRON fire protection appliances that are daily serving modern fire departments throughout the nation.

Quality materials in the hands of our skilled craftsmen backed by over 20 years of experience assure the continued service to the fire fighting profession, which has no equal in the field.

Send for your free copy of our illustrated catalog No. 40.

See our display of New Products at the Boston Convention and Receive a Free Souvenir

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Multiversal

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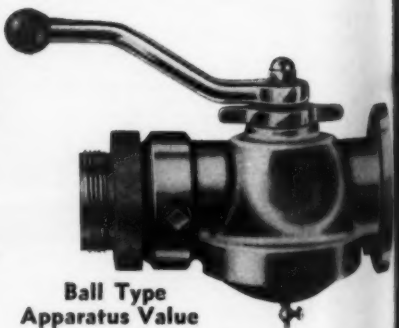
Hydrant Pump



Ball Type Apparatus Value

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WOOSTER OHIO

QUALITY and SERVICE

BRASS

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GARDNER HOSE HOIST
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UNIVERSAL THREAD ADAPTER
APPARATUS ANGLE ELBOW
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LITTLE GIANT PLAY PIPE

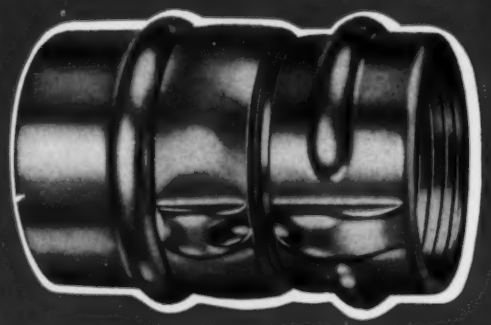
Water Thief

Akr-O-Lite

COMPANY, INC.

A New Name for A New Coupling

AKRON ROCKER RING



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Protects swivel and threads at all time—avoiding delays.

TAPERED STILL THREAD

Free swiveling and turning—no time lost by frozen swivels.

HIGBEE INDICATOR

Prevents crossing of threads—instant action.

ROCKER LUG

Slips over any obstruction—no injury to hose.

Approved by Underwriters Laboratories, Inc.

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SECOND PRIZE—Edward Johnson, Philadelphia, Pa.
THIRD PRIZE—Ivan G. Aasgaard, Fargo, N. D.
FOURTH PRIZE—James Sullivan, Springfield, O.

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W. C. Trafton, Springvale, Maine
Frank Shirley, Los Angeles, Calif.
Charles F. Ingraham, North Plainfield, N. J.
J. W. Thompson, Topeka, Kansas
Henry L. Murphy, Newton, Mass.
E. J. Albertsen, Springfield, Mass.
Harry M. Atkinson, Atlanta, Ga.
Leslie J. Hoertsch, Kenosha, Wis.
Leslie R. Bobb, Portland, Oregon

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The Nation's First Line of Defense Against Fire

From congested metropolitan areas to small villages throughout the nation you will find Seagrave on the defense line ready to combat man's most destructive enemy . . . Fire.

Hundreds of municipalities know, from years of experience, that the name Seagrave stands for dependable, trouble-free fire protection.

The Seagrave plant is devoted EXCLUSIVELY to the making of fire apparatus. . . . Motors, pumps, bodies, ladders, and other items entering into the construction of Seagrave Apparatus are engineered and built in the Seagrave factory.

Any user of Seagrave Apparatus will tell you that there is no substitute for Seagrave's half century of experience, engineering skill and mechanical perfection.

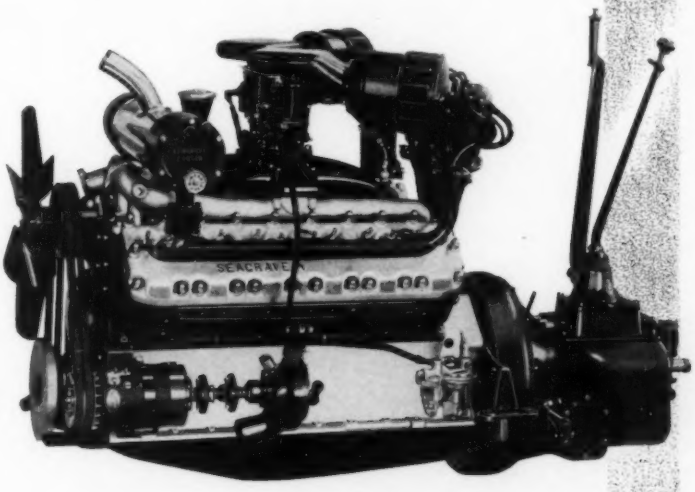
The SEAGRAVE Corporation
Columbus, Ohio

BICKLE-SEAGRAVE, Ltd.
Woodstock, Ontario

SEAG

THE GREATEST

SEAGRAVE V-12



GRAVE

NAME IN FIRE APPARATUS

Fires involving rescue work are usually accompanied by shortages in time and man-power. Present methods are slow and hazardous to both firemen and victims. The B-E EVACUATOR offers every fire department—at a surprisingly low cost—a new, proven method of evacuating persons from burning buildings—WITH PERFECT SAFETY—and with a minimum of man-power.

SAVE LIVES WITHOUT RISKING YOURS AND OTHERS!

DON'T FORGET! SEE US AT THE BOSTON CONVENTION!

★

★

← INTERNATIONAL NEWS PHOTO

★

E & E MFG. CO. DETROIT

BURKE — ELWOOD EVACUATOR PATENTED

MADE BY MASTER CRAFTSMEN

IF YOU CAN RAISE A LADDER—YOU CAN USE A B-E EVACUATOR!

E & E MANUFACTURING CO.
FISHER BUILDING
DETROIT, MICHIGAN

YOU CAN DO IT QUICKLY AND EFFICIENTLY WITH B-E EVACUATORS

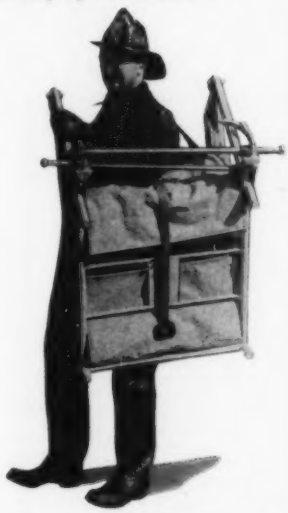
B-E EVACUATORS—are guaranteed without time limitation. Excellence of their materials and manufacture permits us to do this without the slightest hesitation.

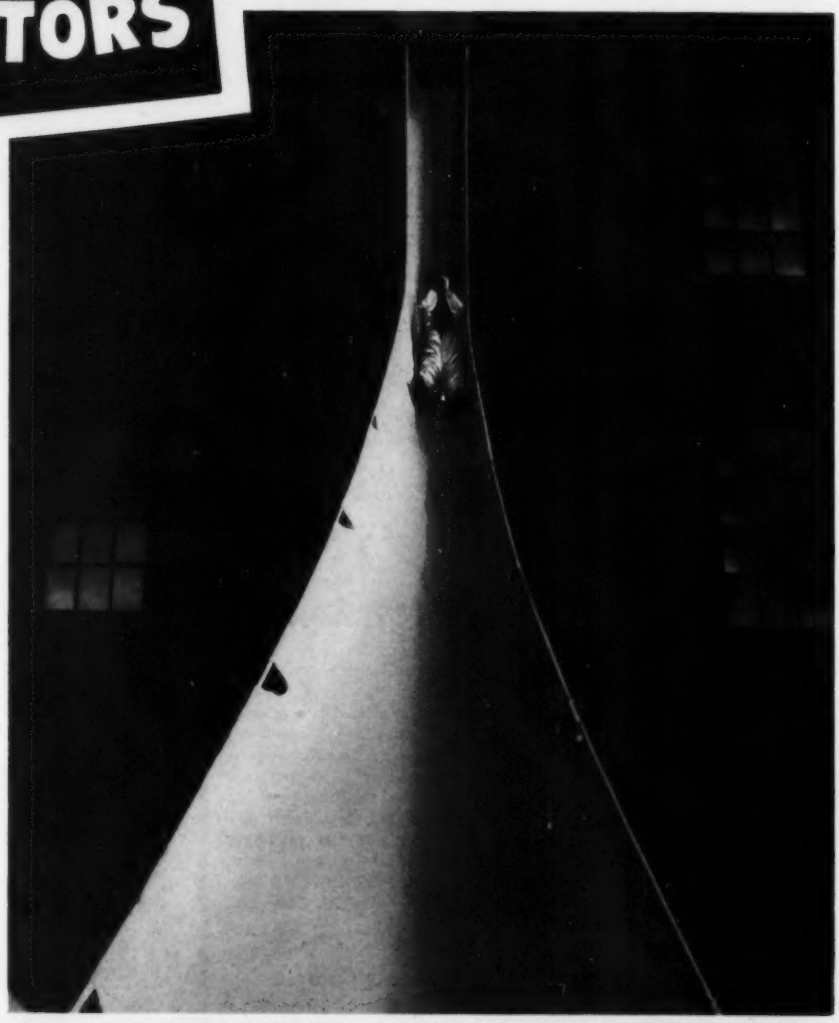
B-E EVACUATORS—compared to the safety value they afford every citizen and fireman, are small in cost—so small, that no community can afford to be without them.

Illustrated below is a B-E EVACUATOR for use with ground ladders. Models for aerial ladders are also available.

We will be glad to demonstrate the B-E EVACUATOR in your town or city, under your conditions—without obligation to you, of course.

Write TODAY for profusely illustrated literature. Inquiries welcomed and promptly answered.





IF YOU CAN RAISE A LADDER—YOU CAN USE A B-E EVACUATOR!

E & E MFG. CO.
BURKE — ELWOOD
EVACUATOR
PATENTED
DETROIT
MADE BY
MASTER CRAFTSMEN

E & E MANUFACTURING CO.
FISHER BUILDING
DETROIT, MICHIGAN

Homes may burn because of that Nail!

Equip with B. F. Goodrich Seal-o-matic Inner Tubes

IT'S NO EXAGGERATION TO SAY that the delay caused by a damaging blow-out or a sudden flat could mean another entry in the "total loss" column. That's what makes Seal-o-matic 2-Way Safety . . . maximum protection against *both* types of tire failure . . . a matter of public importance.

What's more, Seal-o-matics save money on the total rubber expense of fleet maintenance. Users send in amazing records, not only of drastically reduced repair bills, but of pronounced increase in tire mileage. These "self-healing" tubes maintain much more constant air pressure . . . safeguard tire fabric and tread . . . add thousands of extra miles.

For booklet of true experiences, write The B. F. Goodrich Company, Akron, Ohio, Dept. FE-3.

Switch to B.F.Goodrich FIRST IN RUBBER

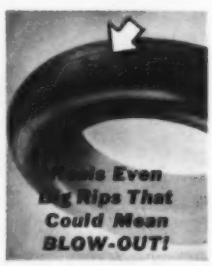
SPECIAL SWITCH-OVER DEALS

Trade in your present tubes—new or old—balance on easy terms . . . at Goodrich Silvertown Stores and many B. F. Goodrich Dealers.

B.F.Goodrich Seal-o-matic

THE 2-WAY SAFETY TUBE THAT "HEALS ITSELF"

Maximum Protection Against Blow-outs and Flats Both!



Seal-o-matic "Self-Healing" lining works in to seal punctures and even big rips while you ride. For extra blow-out protection, tube is 60% stronger than ordinary tubes — toughened and made extra heat-resistant with *Duramin*, like Goodrich Silvertown Tires. Built to size like a tire, too—not sold flat, to be blown up and weakened by stretching.

B.F.Goodrich Seal-o-matic Inner Tubes

FOR PASSENGER CARS — FOR LIGHT AND HEAVY TRUCKS

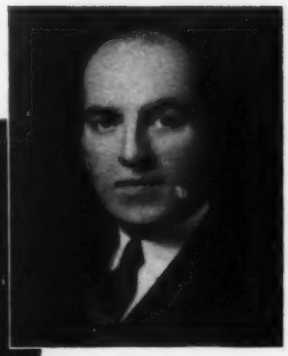
"The best piece of equipment purchased by this department in many years". . . . . .

is the

BOSTON

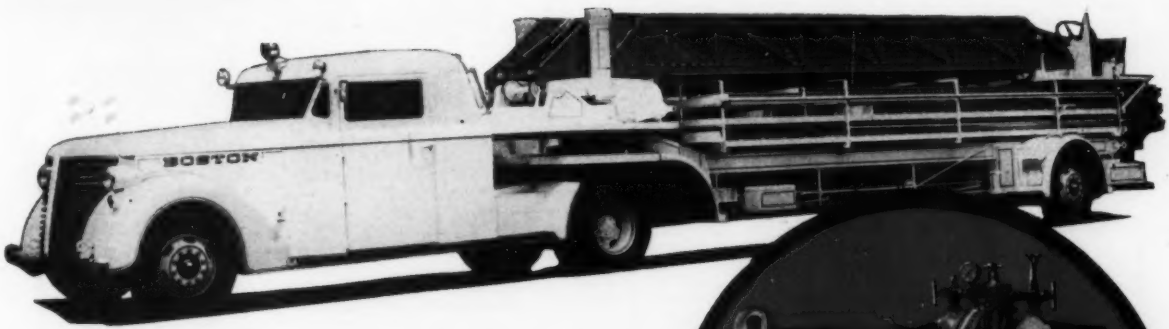
report on the

E & J RESUSCITATOR INHALATOR and ASPIRATOR



Commissioner William Arthur Reilly ▶ Boston Fire Dept.

◀ Chief Samuel J. Pope Boston Fire Dept.



Boston's new 125-ft. aerial ladder, which will also carry an E & J Resuscitator as part of its equipment

AN EXTRA MARGIN OF SAFETY

IN the forefront of the general movement to modernize emergency life-saving equipment, the historic and renowned Boston Fire Department, under the distinguished leadership of Commissioner William Arthur Reilly and Chief Samuel J. Pope, has equipped each of its rescue companies with E & J Resuscitators. These medically accepted automatic breathing machines, strategically located throughout the city, are available day and night to the citizens of Boston, providing "an extra margin of safety" from drowning, gas poisoning, smoke inhalation and other asphyxial emergencies.

Write to any of our offices, listed below, for further information.

E & J MANUFACTURING CO., GLENDALE, CALIF.

Boston · New York City · Philadelphia · Pittsburgh · Chicago

M.S.A. *as always...*

YOUR HEADQUARTERS FOR DEPENDABLE SAFETY EQUIPMENT

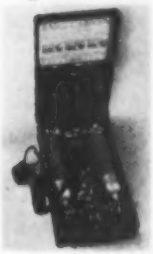
SEE OUR CONVENTION EXHIBIT—BOOTHS 9 AND 10!

The M.S.A. ALL-SERVICE GAS MASK

with ALL-VISION FACEPIECE (U. S. Bureau of Mines Approved)

The only canister type gas mask in fire fighting service which provides Bureau of Mines Approved protection against smoke and all industrial gases, singly or in combination, including Carbon Monoxide. The famous M.S.A. All-Vision Facepiece provides wide-angled vision through extra-large lenses, and fits any face with a gas-tight seal—without binding or pressure. A special feature is the automatic timer, which indicates on a dial the service time of the canister. Write for Bulletin No. EA-4.

M. S. A. TELEPHONE MASK—Combining the All-Service Mask with a unique telephone, the M.S.A. Telephone Mask provides two-way communication between wearers in remote gaseous atmospheres and persons at the fresh-air base. No batteries or other external source of power are required—speech is distinct, clear and true; your men can report conditions as they see them, without leaving their posts—greatly increasing effectiveness in combatting fire. Write for descriptive Bulletin No. EA-5.



THE H-H INHALATOR—Approved means of resuscitation for victims of smoke, gas asphyxia, electric shock, drowning and other hazards, is a practical necessity for the modern fire department—and the most widely-used, time-proved and effective resuscitation instrument is the famous H-H Inhalator. Employed in conjunction with artificial respiration this device supplies the victim with a mixture of carbon dioxide and oxygen to stimulate breathing and ventilate the lungs—naturally and gently, without harm to delicate tissues. It is compact, portable, easily operated by one man, and is officially accepted by the Council on Physical Therapy of the American Medical Association; approved by the Association of Police and Fire Surgeons, and the American Gas Association. Request Bulletin No. CA-9.

M. S. A. FOILLE BURN SPRAY KIT—An exclusive M.S.A. development, providing all the advantages of Foille for Burns with employment of the spray technique for speed and efficiency. No time is wasted in mixing ingredients or making solutions—Foille is ready always for instant service. An ample supply of Foille is provided in jars which screw directly to the pressure gun; regular first aid kit Type D packages of gauze, dressings and other accessories are quickly accessible. Case is weather- and dust-proof, finished in red crackle enamel with white lettering. Write for Bulletin No. FA-73.

STREAMLINED M. S. A. FIREMAN'S HELMET—A modern helmet, designed in every particular to meet your highest standards of safety, comfort and appearance. Molded of laminated bakelite, the new Streamlined M.S.A. Fireman's Helmet features wide, arched side brims to deflect water and heat; long, sweeping rear brim for increased protection to neck and shoulders; a reinforced crown ridge which adds to the great natural strength of the helmet, and *smart appearance* from every angle. You'll want the details of construction and equipment contained in descriptive Bulletin No. DX-5—let us send you a copy.

M. S. A. ONE-HOUR BREATHING APPARATUS—Whenever men must enter gaseous or smoke-filled atmospheres where oxygen is insufficient to support life, this time-proved apparatus is essential—providing a full hour's respiratory protection in unbreathable air, even under extreme exertion. Equipped with the M.S.A. All-Vision Facepiece, for complete coverage of face, the M.S.A. One-Hour Oxygen Breathing Apparatus permits the unobstructed vision so desirable in smoky locations; is self-contained, compact, well-balanced and light in weight, and offers no interference to freedom of movement, clothing, helmets or equipment. Bulletin No. BM-2.

DEMONSTRATIONS GLADLY ARRANGED ON REQUEST

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Sts., Pittsburgh, Pa.

District Representatives in Principal Cities

INDIAN

FIRE PUMP EXTINGUISHERS

SPEED— EFFICIENCY— ECONOMY—

To each of these demands INDIANS are the perfect answer. Now, *more than ever,* fire departments must have a fast and positive means of putting out the small fires which make up 50 to 75% of their calls. The fact that INDIANS, *using only clear water,* can do the same job as the soda acid type saves you time and money. Carrying racks hold pumps firmly in place on running board or floor of truck. INDIANS are portable by carrying handle or strapped on the back. Many still in use after 10 years of service.

STRONG, YET LIGHT IN WEIGHT

You will like the highly polished brass tanks which are such a favorite with fire departments. Just wipe them off and they *glisten like new.* Or the entire outfit may be had in handsome chrome plated finish. INDIANS are sturdily built to give years of trouble free service—yet they are *light in weight.* Air conditioned tanks prevent dampness seeping through to the carrier's back. *"Would not be without them"—"ideal equipment"—"a different use every day"*—these are just a few comments from INDIAN users. Send for illustrated catalog showing different models with prices and full details.

NATIONAL DEFENSE THROUGH FIRE DEFENSE

MADE IN AMERICA

D. B. SMITH & CO

406 MAIN ST. UTICA, N. Y.

Hercules Equipment & Rubber Co. 330 Third St., San Francisco, Cal.

Carco-Conwhit Sales Co. 520 S. W. Pine St., Portland, Ore.

The Conwhit Co. Klamath Falls, Oregon

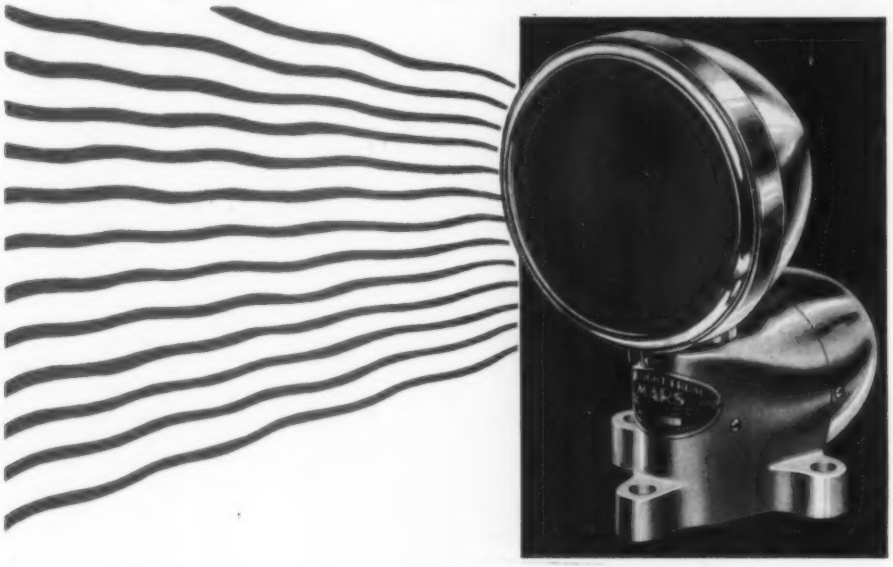
Mill and Mine Supply, Inc. 2700 4th Ave., Seattle, Wash.

Roy G. Davis Company 617 E. 3rd St., Los Angeles.

GUARDING THE LIVES OF MILLIONS

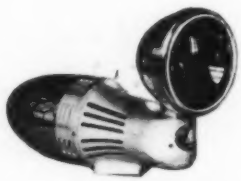
It's MARS *from Coast to Coast*

THE LIGHT THAT COMMANDS INSTANT ATTENTION



Oscillating in the form of a figure 8, it throws a red beam of light up and down and from curb to curb. Of sturdy construction, the Light from Mars is fully guaranteed for five years. Standard equipment in over 300 fire departments, Mars have never failed in their guarantee and never will.

THE PERFECT COMBINATION



Mars now presents Mars Wildcat Siren and the Mars Light in one compact unit. You can use the light separately, or both at the same time. The Siren, operating on a ballbearing shaft at a positive and terrific speed, with its shrill blast, can be heard for miles.

U. S. ARMY FIRE TRUCKS ARE EQUIPPED WITH MARS SIRENS
Specify MARS when you buy new equipment.
Insist on the MARS SIGNAL LIGHT & WILDCAT SIREN.

For prices and complete information write to

MARS SIGNAL LIGHT CO.

5737 W. DIVISION STREET CHICAGO, ILL.

PROTECT THE LIVES OF YOUR MEN AND YOUR VALUABLE APPARATUS WITH MARS

HAVE YOU A LIFE NET THAT WILL SAVE HER, CHIEF?

Photo courtesy of the America Fore Insurance and Indemnity Group

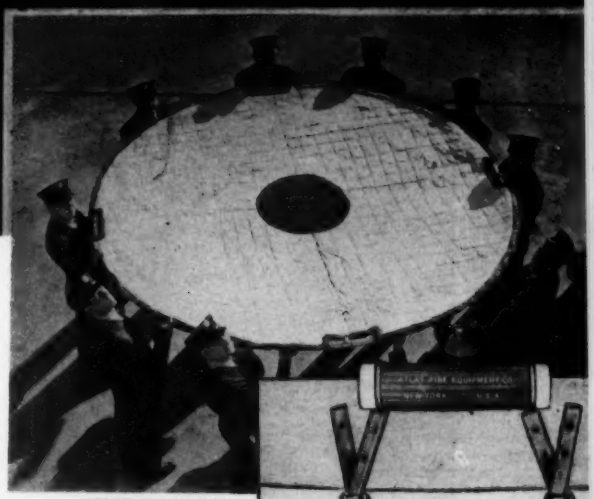
What type Life Nets do you have in your Department? Are they safe . . . built for modern day life-saving service . . . or are they old and out-of-date?

Saving lives is your first duty . . . but because you have several Life Nets doesn't mean you are prepared for this duty. Have you ever examined your Nets? Not just a "once over" but a thorough examination of all parts and then follow up with a specified "Impact Test"? Such a test would prove whether your Nets can do a life-saving job . . . SAVE lives trapped on upper floors from great heights . . . make successive safe landings if a number of persons are trapped in a factory, hotel or apartment house blaze? Would your Life Nets meet the test? ATLAS LIFE NETS will!

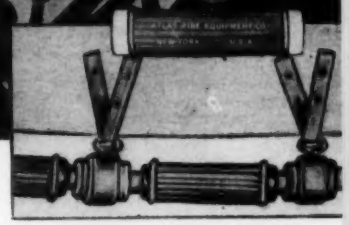
Safe, practical, used in hundreds of Departments, ATLAS LIFE NETS are engineered to SAVE lives. As many as 200 to 300 jumps are made daily in ATLAS LIFE NETS in large Training Schools . . . without a casualty. Even in Official Tests ATLAS LIFE NETS have proven that they alone can "safe land" jumps from great heights without injury to anyone. See three of the many exclusive ATLAS features illustrated opposite, and you will understand why this Net is accepted as the best obtainable . . . and certainly for life saving only the best should be used.

On Pumpers, Aerials, Hose and Rescue Trucks, a compartment can be provided to house the ATLAS LIFE NET. Specify by name, ATLAS LIFE NET. . . . Don't make the mistake of simply stating "a life net" . . . otherwise a cheaper, outmoded type product may be substituted. ATLAS LIFE NETS are engineered to SAVE lives. Insist upon them!

Write today for a complete descriptive bulletin.

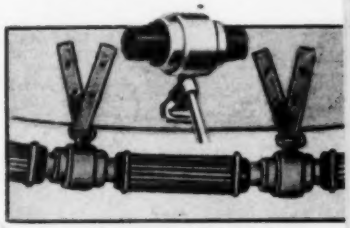


ATLAS Quarter-Fold LIFE NET



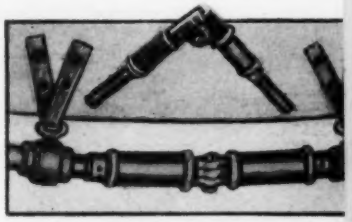
MOULDED RUBBER HANDGRIPS

Eliminate friction burns and bruises on the han of the men holding the Net — while providing safe, firm hold. Exclusive with Atlas.



DUAL SHOCK ABSORBERS

32 of these patented units on every ATLA NET . . . form a SHOCK ABSORBER SYSTE which absorbs terrific impacts, leaving little strai on the men holding the Net. Exclusive with Atla



AUTOMATIC LOCK ACTION

Can't fail . . . lock is foolproof . . . open or closed instantly, yet AUTOMATICALLY locks when Net is opened. Patented featur Exclusive with Atlas.

ATLAS FIRE EQUIPMENT CO., INC.

26 WARREN STREET, NEW YORK, N. Y.

Ready for Defense

WHATEVER YOUR NEEDS, PUMPERS— LARGE OR SMALL, FOREST FIRE EQUIPMENT, OR EMERGENCY DEFENSE EQUIPMENT

"You can count MAXIM to deliver the goods"

Above—500 g.p.m. Maxim Trailer Pumper recently delivered to the Boston and Maine R.R., for use as auxiliary equipment, in case of hostilities, by any fire department located on Boston and Maine lines.

●

At Right—Maxim Trailer Pump recently delivered to the city of Boston.

Units available:
500 gallons per minute 600 gallons per minute
750 gallons per minute

also
Four-cylinder hand portables

and
Pumping engine units on skids, for use on boats, docks or as emergency stand-by units in pumping stations.

For over 50 years, the Maxim Motor Co. has been building dependable motor driven fire apparatus.

And today, just as during the past, Maxim is ready to meet your requirements. We are ready to do our part, in speedily equipping America with modern Fire Fighting Apparatus—Ready to meet the emergency.

MAXIM MOTOR COMPANY

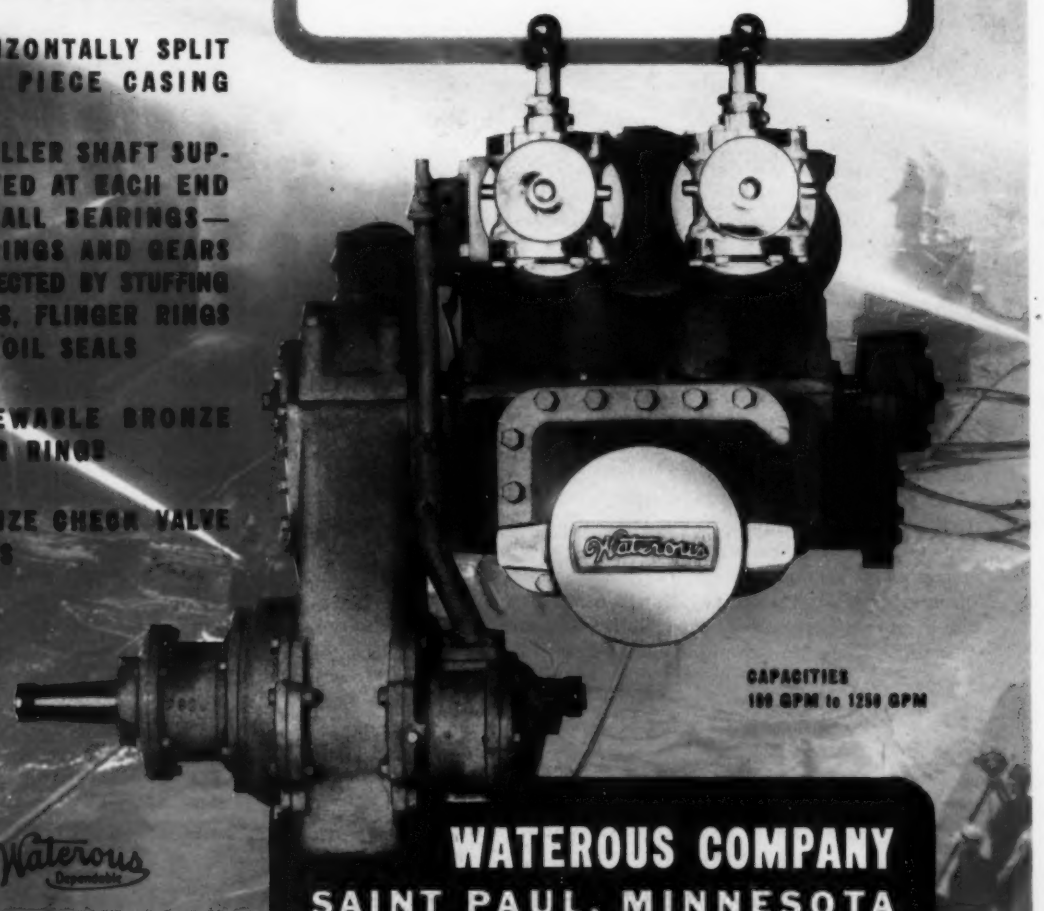
MIDDLEBORO MASSACHUSETTS

WATEROUS FIRE PUMPS *are built to high quality specifications*

DEMAND THESE FEATURES IN YOUR MULTIPLE STAGE CENTRIFUGAL FIRE PUMP:

- HORIZONTALLY SPLIT TWO PIECE CASING
- IMPELLER SHAFT SUPPORTED AT EACH END BY BALL BEARINGS—BEARINGS AND GEARS PROTECTED BY STUFFING BOXES, FLINGER RINGS AND OIL SEALS
- RENEWABLE BRONZE WEAR RINGS
- BRONZE CHECK VALVE SEATS

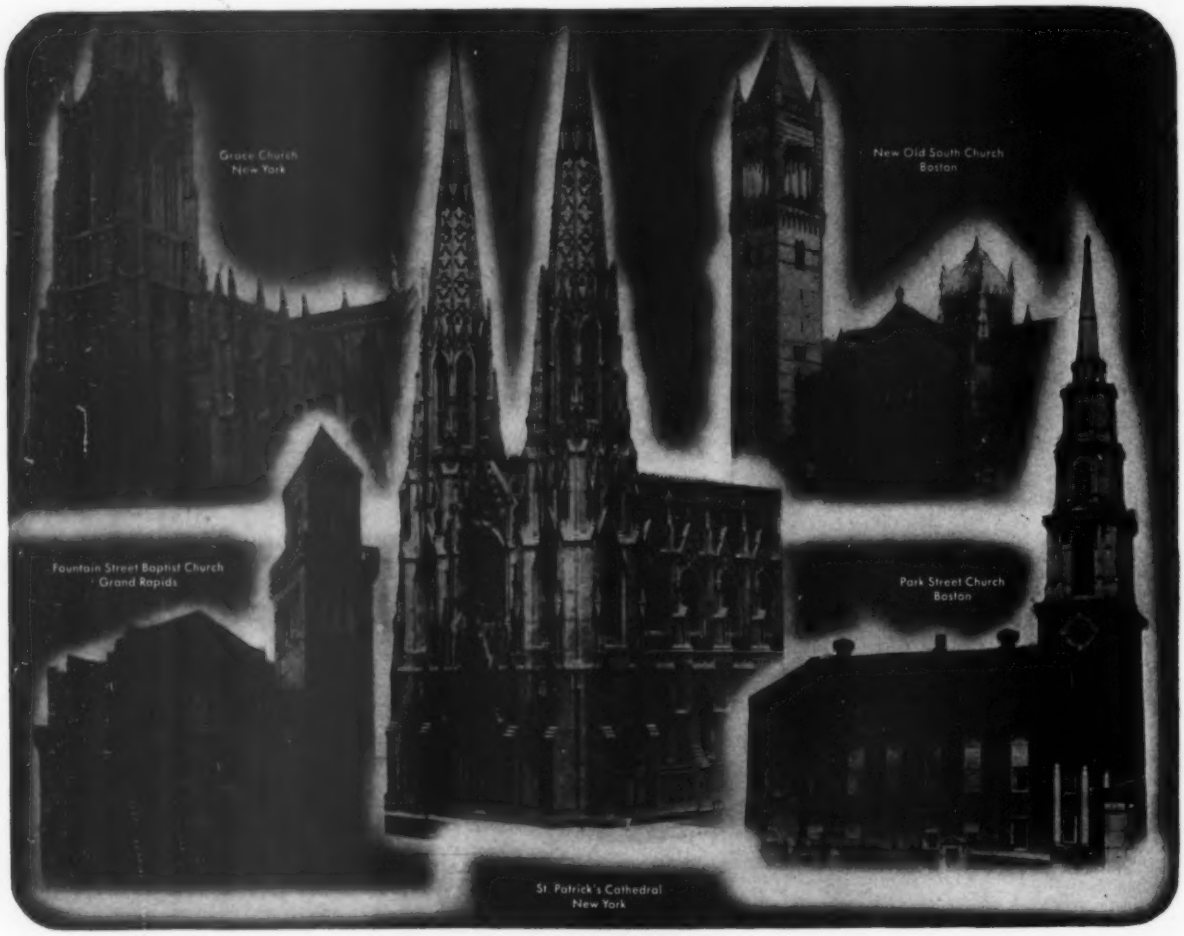
When you buy a piece of pumping equipment make a detailed examination of the fire pump. We feel certain that if you will follow this suggestion you will select the WATEROUS. WATEROUS Pumps are dependable because they are built that way. Send for complete information.



CAPACITIES
100 GPM to 1250 GPM

Waterous Dependable

WATEROUS COMPANY
SAINT PAUL, MINNESOTA
ESTABLISHED 1886



Modern Fire Protection Safeguards these

Famous Churches

A recent bulletin* of the National Board of Fire Underwriters contains the following statements:

"A study of church fires indicates one outstanding fact, and that is the importance of early discovery of the fire...However, these buildings can be given a high degree of protection through the installation of an automatic fire alarm system, which will assure the calling of the fire department before the fire has reached that stage where fire fighting is almost sure to be of no avail."

Shown here are some of the many churches that have met the hazards of belated discovery and delayed alarms by means of the Aero Automatic Fire Alarm System. Entirely automatic in its operation, Aero is on the watch for fire twenty-four hours a day, every day in the year, thereby assuring prompt discovery and prompt and accurate alarms, no matter what hour of the day or night a fire may break out.

*Bulletin #86, Committee of Fire Prevention and Engineering Standards, National Board of Fire Underwriters.

AERO AUTOMATIC FIRE ALARM

Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York, N. Y.*

CENTRAL STATION OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

ADT

Electric Protection Services

AGAINST FIRE · BURGLARY · HOLDUP

A NATION-WIDE ORGANIZATION

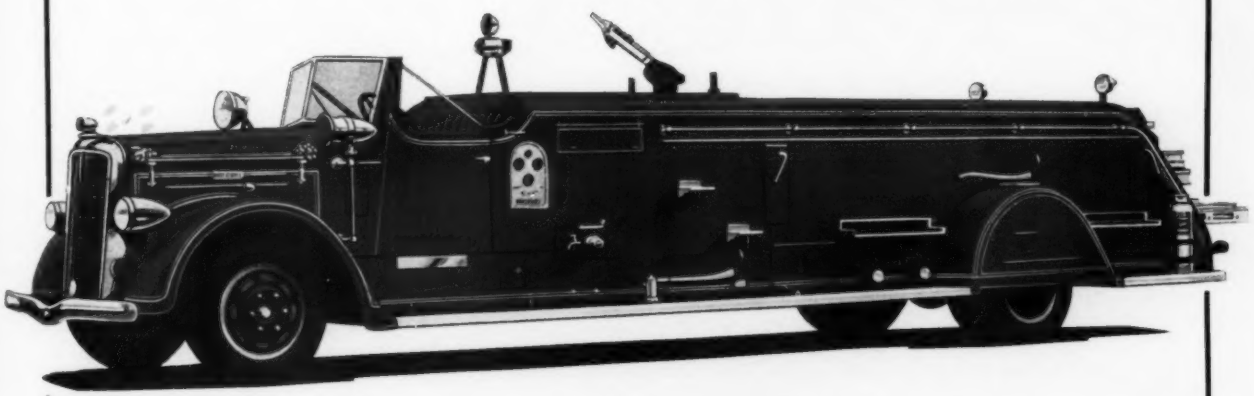
WARD LAFRANCE

FIRST... FIRE APPARATUS OF QUALITY

on the firing line—the first line of defense!

RECENT EASTERN SALES

New York City—6 Special Hose Cars
Washington, D. C.—7, 1,000 Gal. Pumpers
1, 750 Gal. Pumper
Philadelphia, Pa.—16, 1,000 Gal. Pumpers
Manhasset, N. Y.—1,000 Gal. Pumper
Pittsburgh, Pa.—3, 1,000 Gal. Pumpers
Little Ferry, N. J.—500 Gal. Pumper
Clifton, N. J.—500 Gal. Quadruple
Montclair, N. J.—750 Gal. Pumper
Groveville, N. J.—500 Gal. Pumper
Pearl River, N. Y.—750 Gal. Pumper
Saugerties, N. Y.—500 Gal. Pumper
Hammondton, N. J.—500 Gal. Pumper
Phoenixville, Pa.—750 Gal. Pumper
Spencerport, N. Y.—500 Gal. Pumper
East Islip, N. Y.—City Service Ladder Truck
Floral Park, N. Y.—750 Gal. Pumper
Moosup, Conn.—500 Gal. Pumper



AN EXAMPLE OF WARD LAFRANCE STREAMLINING

We Are Cooperating in the National Defense Program

We have sold 79 triple combination pumpers so far this year to the Army, Navy and Treasury Department.

Greetings and An Invitation

You are cordially invited to stop at our plant at Elmira Heights, New York, while driving home from the convention.

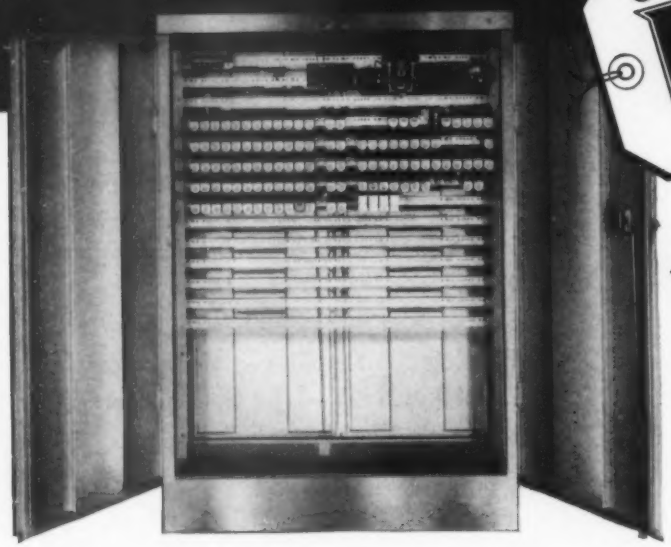
WARD LAFRANCE TRUCK CORP.

HOSE CARS – LADDER TRUCKS – FLOODLIGHT TRUCKS – SQUAD and RESCUE TRUCKS

WARD LAFRANCE TRUCK CORP., ELMIRA, NEW YORK

3 Good Reasons FOR "GOING NORTH"

GraybaR QUALITY *Via* GraybaR



★1 *Extra Speed*

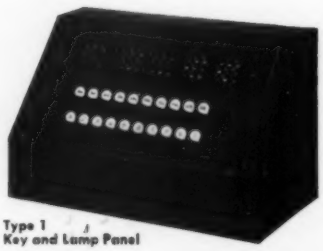
★2 *Extra Security*

★3 *Extra Service*

★1 A modern alarm transmitter that assures instant, positive response is indispensable for municipalities in which outlying fire stations are controlled from a central station. The *North* "All-Relay" Fire Alarm Transmitter System does this *automatically*. Another important advantage is its simple operation. A desk man can operate it with a few minutes' instruction.

★2 Operated exclusively by relays, the *North* Transmitter does not require frequent cleaning, oiling or adjusting. There are no spring wound motors to require winding. It is flexible and can be adopted to meet almost any existing requirement. Consequently, maintenance costs are practically nil.

★3 By buying "via GRAYBAR" you get the extra benefits of the GRAYBAR tag. You're sure to get personalized service, on leading electrical products, from a local source. So, why not ask your local GRAYBAR Representative to sit down and discuss your particular problems. He'll be only too glad to help you.



Type 1
Key and Lamp Panel

The *North* "All-Relay" Fire Alarm Transmitter System is composed of a Key Panel, a Visual Indicating Panel and a Code Transmitter. When the call number is received over a box or telephone circuit, the attendant depresses the keys on the panel in their proper numerical order. This establishes the call box number on the code transmitter and causes lamps on the visual indicating panel to light. After checking to see if the box number is correct, the attendant merely depresses the "Start" key and the code is on its way.

Type 2
Key Panel

The *North* System is available in two types—(1) with the key panel and indicating panel in one unit; (2) with the indicating panel separate so that it can be mounted on the wall, top of switchboard, etc. Check with GRAYBAR on prices, specifications.

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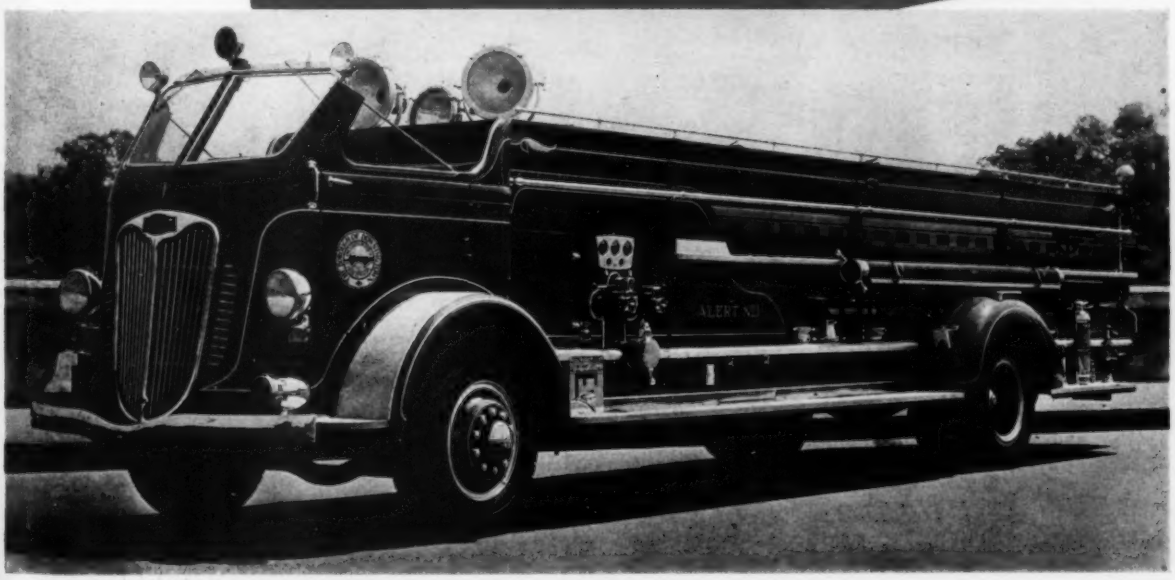

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FIRE ENGINEERING

AUGUST, 1941 VOL. 94. NO. 8

With the Editor

First Casualty For Civil Service Mayor LaGuardia has innocently done serious injury to the Fire Department in New York City by having the position of Chief of the Department made appointive rather than by Civil Service examination as it was formerly done. The position of Chief will now be somewhat of a political plum, and the incentive for deputy chiefs to prepare themselves for the office of Chief is gone.

Mayor LaGuardia has done far more injury to the fire service and to Civil Service by his action than is readily recognized. He has opened the door to meddling with all promotions in the department by succeeding administrations which do not maintain his high standards of honesty and public interest.

For if the Chief can be appointed from among the deputies without civil service examination, it is a small step to making the deputies appointive from among the battalion chiefs; to making the battalion chiefs appointive from among the captains; to making captains appointive from among lieutenants, and to making lieutenants appointive from among firemen. And then where is your civil service system?

This innocent appearing innovation on the part of Mayor LaGuardia will prove a serious setback to Civil Service in the fire department. It opens the door for future tinkering with the service right down to the rank of fireman. A bad precedent has been set!

The Motor Fire Apparatus Problem In a report recently made to the Massachusetts Committee on Public Safety on the manufacture of fire apparatus to meet wartime needs, some interesting conclusions are drawn. Because the report may ultimately have wide circulation it seems desirable to comment on some of the recommendations and findings therein in order that the uninformed municipal official may not be misled.

In the first place it is pointed out that the peak year for fire apparatus manufacture, 1928, saw 1500 units built, and subsequent statements might lead the reader to believe that this figure represents the maximum annual output possible from the industry. It doesn't. If cities were pressed for apparatus and would accept manufacturers' standard designs, the maximum annual production would be several times the figure cited. It is the variations in design insisted upon by cities that slow up production.

The War Department demand, while heavy during the past year, totalling nearly 1000 pieces, is already easing off, so fire apparatus plants will have additional production capacity for municipal orders.

It is further pointed out in the report that no manufacturer will promise delivery of a standard pumping engine under 100 days.

If the author of the report had checked back a few years he would have discov-

ered that orders were taken then on a 90, 100 or 120 working day basis. As long as special designs are required by each customer, there will be no liklihood of reducing the time of delivery, no matter which fire apparatus plant is building the apparatus.

The report lists three bottlenecks limiting the production of fire apparatus: steel, aluminum and pumps.

Fortunately, motor fire apparatus is well on the way to receiving a high priority rating by the O. P. M., so that the first two factors should constitute no brake on fire apparatus production. With regard to pumps, no shortage has been experienced and none is anticipated.

The suggestion is made that some standard design of light weight fire engine be adopted and that one of the large manufacturers of smaller commercial cars build the unit in quantity.

To meet the tremendous demand for pumps, it is suggested that four large pump manufacturers, none of which has ever built fire apparatus pumps, could "go into large scale production" of such pumps.

If such a plan were followed, there would be no gain, for it would take from one to two years for the manufacturer to get tooled up and ready for the production. Furthermore, no light commercial car manufacturer has had any experience in fire engine design and construction, and faults in design would surely show up in the machines when they were put to severe fire duty.

The established manufacturers of fire apparatus both large and small already have the experience. If they were permitted to build fire engines of their own standard designs, they could build all the regular apparatus required by the emergency.

It seems to us that the soundest policy to follow is to have all regular apparatus built by established, and experienced, fire apparatus builders, but with the proviso that the manufacturers' standard designs be furnished. Such a policy would remove all bottlenecks, would result in a production rate sufficient to provide all the apparatus needed without undue delay, and would insure a thoroughly dependable product.

Favorable Prospects The priorities officials at Washington are giving serious consideration to a request for a blanket priority rating for the fire apparatus industry. The O. P. M. has been quick to appreciate the importance of having fire defense at full strength. As one of the officials of the Office of Production Management stated recently, "The neglect of fire-fighting apparatus might indeed be fatal to defense plants."

It is particularly gratifying to those in whose hands rest the protection of life and property against fire in this country to know that the O. P. M. has such a clear understanding of the needs of the field.

Of course, if a high priority rating is granted, it will be with the understanding that the use of critical materials will be avoided to the greatest possible extent, but not to an extent which might interfere with the reliability of operation of apparatus and equipment.

It is hoped that an early decision by the O. P. M. will be forthcoming.

Fred Sheppard

The Role of the Fire Service In National Defense

By FRED SHEPPERD*

IN a report entitled "Civilian Defense," prepared by the Advisory Committee on Fire Defense and issued by the Division of State and Local Cooperation of the Office for Emergency Management, the following statement appears:

"In these days of total defense, a Nation's secondary lines of defense, including the organization of fire services and the provision of police protection, are almost as important as the military or first line of defense. In some cases, these secondary lines of defense may be of equal importance to the Nation."

Civil Defense and Fire Defense

The experience of the British fire service would seem to indicate that up to date civil defense *is* fire defense. It need only be pointed out that the London fire department alone has averaged 700 fires a day, with a top of 2,000 fires in one night, to appreciate the tremendous task with which they are faced. These figures do not include incipient fires that are extinguished by fire wardens, police or the public without the aid of the fire department. The multiplicity of fires was not all that taxed the fire department. In addition to the fires, water mains were crippled by high explosive bombs, streets were littered and in some cases impassable, due to debris. Roadways were blocked by bomb pits, gas mains were ruptured and gas ignited, and communication systems seriously damaged.

Experiences Abroad

In discussing the role of our fire service in national defense, it will be helpful to review briefly the experiences of our brother firefighters abroad, particularly with regard to what they had to face during aerial attack, for, after all, that will likely represent the major problem to be faced here.

Recent blitz bombings in England show a definite pattern or plan, though this plan may be varied from time to time. First to arrive are the planes which drop flares. These flares light up the area to be bombed; then come the planes carrying incendiary bombs, and these bombs are strewn over the area. Following the incendiaries, high explosive bombs are dropped. These latter bombs drive to cover those who may be trying to extinguish fires started by the incendiary bombs and also serve to wreck buildings and thereby make them easier prey to fire. And then in some instances oil bombs are subsequently dropped to spread fires over wrecked areas. Where fires have gained headway, enemy planes oftimes machine gun the firemen to hinder their operations and thus aid fires in spreading.

That America will ever be subjected to the same intensified air attacks that England has experienced seems to the layman most improbable. Surely the general use of high explosive bombs on a big scale on other than military objectives would not be in order, due to the cost of these bombs, the cost of transporting them and their limited range of effectiveness. But the use of incendiary bombs, where a $10 bomb might start a $10,000,000 fire, would prove attractive to an enemy. The use of incendiary bombs is therefore indicated if we become actively engaged in the war and if any bombing whatsoever is done.

Set Fires

In considering incendiary fires, we must not overlook the saboteur. Sabotage by fire is effective, and evidence of the crime is frequently destroyed in the fire. But sabotage can

A London Street After Bombing. This Street Is Impassable for Motor Fire Apparatus.

*Editor of FIRE ENGINEERING and Headquarters Manager, I. A. F. C. Excerpts of paper presented before first Civilian Defense Course, Chemical Warfare School, Edgewood Arsenal, Maryland, July 9, 1941.

be controlled largely by vigilance, and a multiplicity of fires at one time within a city is improbable. On the other hand, air attacks can neither be checked by vigilance, nor can the number of fires caused be reduced by the same means. The fire department, with its auxiliaries, must be prepared to extinguish them, for if it fails in this, conflagration may result. Four and a half square miles area in one British city was leveled by fire during a single air attack.

Even though the enemy planes which bombed London had but a short distance to travel from their base in France, just across the English Channel, and thus could carry on a sustained bombardment with high explosive bombs, it is interesting to learn that the damage done by incendiary bombs in London was far greater than that done by the high explosive type.

To fill its role, and fill it with full effectiveness, the fire service must first look to its apparatus. Specialized fires require specialized apparatus, a multiplicity of fires require widely distributed apparatus, and large fires require apparatus of large capacity.

The first step is to bring the department up to its full strength by replacing obsolete machines with new; and by restoring the full personnel to fire companies. After this has been accomplished, then special auxiliary apparatus may be provided.

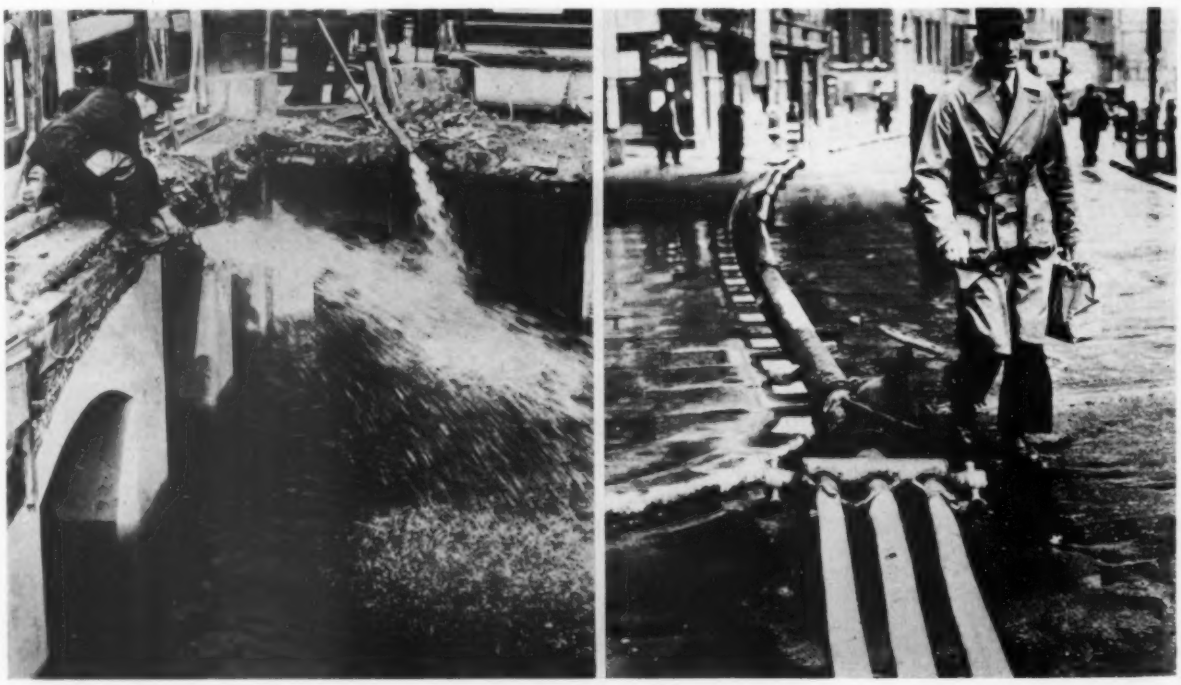
Experience in England has shown that the small trailer pump is effective and economical for war-time service. Because of its small size, it can be stored at convenient points within buildings and thus will be near at hand when needed. Its capacity is such that it can handle any small fire, or it can serve, when used in numbers, with good effect at larger blazes.

The number of trailer pumps employed in London is on a basis of twenty-five to thirty for each regular fire company. In American cities where there are relatively more companies in proportion to population than in London, the ratio would be smaller. Furthermore, with less intensified bombing as expected here, the number of trailer pumps needed would be even less. Possibly ten to fifteen trailers per regular company would be sufficient for American cities.

High Building Protection

When a high explosive bomb strikes the top of a building, the water tanks thereon supplying the sprinkler and standpipe systems of the building are put out of commission, as are also both systems. For that reason, fire fighting operations in these taller structures are made difficult. To speed up operations and to enable the fire department to get streams quickly in operation on the fire, the use of aerial ladders, preferably of the metal, power operated type, is essential. So effective have these aerial ladders proven in British cities that one aerial ladder is being provided for each pumper in the service. It is recommended that the ratio of aerial ladders to pumpers be also increased in fire departments of cities along the Atlantic and Pacific seaboards.

Fire hose, the medium through which water is carried from its source to the fire, is the most important tool of modern fire departments. Without hose, the most powerful fire engines are worthless as fire extinguishing machines. Where a large number of fires are burning at the same time, a single fire company may have to stretch three or four lines. Unless there is a reserve supply of hose, this cannot be done, for each fire engine carries only from 1,000 to 2,000 feet of hose. Present hose supply of fire departments within the probable zone attack should be doubled. And because long stretches will be common, and high pressure at engines will be required to produce satisfactory pressures at nozzles, only high grade hose should be consid-



Left: When a Building Is Demolished by Bombs in London, the Basement, If It Is Tight, Serves as an Emergency Reservoir for Fire Fighting. Right: Surface Mains Have Been Laid in London to Supplement Underground Pipe Lines. Five Hose Lines May Be Taken from Each Manifold

ered. Where each engine and each line must perform, during a multiplicity of fires, the failure of a single line of hose may prove disastrous.

In connection with the use of fire streams during air attack, certain devices have proven especially valuable. The deck gun, mounted on a fire engine, or other piece of apparatus, delivers a large stream under high pressure and holds its direction without outside aid. It can be aimed to deliver a stream at any point desired, and, left by itself, it does not change this direction. This characteristic is particularly valuable when firemen operating on a fire are driven to cover by enemy planes. The stream will continue to do its work while the firemen take shelter. Pipe holders, placed on the ground, have proven equally valuable.

Extinguishers

The proper use of the proper types of extinguishing agents has a very important part in the role of the fire service in national defense. A brief review of these agents, with a word about their limitations, may be of interest.

Probably the most novel extinguishing agent today is water fog. This fog is produced by the discharge of water, usually under fairly high pressure, through a special atomizing nozzle. In some cases the extinguishing effect is produced by quenching, that is, the cooling of the combustible material to a point below its reignition point; in other cases, particularly in confined fires, the result is brought about by the smothering of the fire, the fog being vaporized by the heat of the fire and the steam so produced smothering the fire. At heavy oil fires, the fog produces an emulsion on the surface of the burning oil and this emulsion aids in the extinguishment of the fire.

But of particular interest to us today is the effectiveness of the fog nozzle in combating fires involving the magnesium, or electron metal, incendiary bomb. While the fog tends to increase the intensity of combustion of the bomb, it does not cause the violent reaction (sputtering) produced by a solid water stream striking the burning bomb. And at the same time the fog extinguishes the fire in any combustible material which may be in contact with the bomb.

The stirrup pump is used very widely abroad for handling incipient fires caused by the one-kilogram bomb. The proper use of this pump, which employs water, requires three persons: one operates the pump, one handles the nozzle and the third carries water for the container in which the suction of the pump rests. Properly used, it is safe and effective for small magnesium bomb fires.

The Stirrup Pump Serves in London; Here a Crew of Four Operates It.

The knapsack type extinguisher, which consists of a five-gallon tank curved to fit the back and carried by straps, is fitted with a hand-operated piston pump, by which the operator can deliver a stream a distance of thirty feet or more. This is a one-man extinguisher and has proven very effective on the incipient fire.

The soda and acid extinguisher consists of a cylindrical tank with 2½ to 3-gallons capacity, and fitted with hose and nozzle. Bringing together within the extinguisher a sodium bicarbonate solution and sulphuric acid creates carbon dioxide gas, which provides the expelling force for the soda solution. This extinguisher is about as effective in extinguishing fires as plain water in an amount equivalent to the fluid contents of the extinguisher. It is safe for use on all fires on which plain water might be used.

The carbon tetrachloride extinguisher is not safe for use on incendiary bombs.

Carbon dioxide gas fire extinguishers are not effective on magnesium bomb fires, for they increase, rather than decrease, the intensity of combustion.

Dry sand and powdered talc are useful in controlling the burning magnesium bomb, though they do not always stop the burning. Quite recently a powder has been developed by a magnesium manufacturer and an extinguisher maker which is said to extinguish the fire involving an electron metal bomb.

Water Supply

Despite the many extinguishers and extinguishing methods developed, water still remains the first line in fire defense. In fact, it is the only agent that can today be used in the control of conflagrations. Hence, its great importance in civil defense. There's not a city in United States that has not a water supply that will meet ordinary peace time fire fighting needs. But, unfortunately, every water supply system is highly vulnerable to aerial attack. It is not the reservoirs that suffer. It is the underground mains carrying the supply throughout the city. During a heavy aerial attack in London, the breaks in water mains may exceed one hundred. As water mains in this country are buried at depth of only 2 to 6 feet, it does not take a large bomb to penetrate the pavement and earth beneath it and rupture a main. And unless the water main system is cross-connected and valved, so that any broken section may be segregated, serious bleeding of the water

system may result from pipe rupture caused by bomb. In one British city, nearly 60% of the water system was put out of commission during a blitz attack. It was four days before service was entirely restored.

Provision of water supply looms as a vital problem in civil defense.

In the event of serious damage to the water system, reliance must be placed on other sources of water. Hence a thorough study should be made into the various sources of auxiliary supply that might be used. These sources should be tried out in actual practice to assure the familiarity necessary for most effective use. Auxiliary sources which should be investigated and catalogued might include: rivers, brooks, ponds, lakes, pools, cisterns, wells, roof tanks, tank trucks, private storage tanks, industrial water plants, swimming pools and other available sources.

Relay Lines

In connection with the use of auxiliary sources at a distance, men must be fully instructed in the use of relay lines. The only limitation as to the distance water can be delivered through fire hose is the number of pumping engines available, and, of course, the supply of hose on hand. At the big London fire, water was taken from the Thames River and sent through hose lines miles in length.

The men should be fully informed, too, in the bridging of broken sections of water mains by use of hose lines. If, upon isolating a break in a main by closing valves, the main on the far side is deprived of water, it is necessary to supply this main by use of hose, preferably of large diameter, stretched across the break from hydrant to hydrant.

Hydrants

Periodical inspection of hydrants should be made by members of the fire department to make sure that they are in good condition and ready for operation It is desirable to have hydrants painted white, so that they can be readily located during a black-out. Either the size of main to which the hydrant is attached, or some other symbol indicating the probable flow from hydrant, should be painted on the hydrant barrel or hood. It is also desirable to paint a white line across the street at hydrant location to facilitate the location of hydrant during black-out.

To conserve water supply, when many fires are burning, water should be reused. That is, water flowing from a building, industrial plant or other structure should be reused for fire fighting operations. It is not recommended, however, that this practice be followed at oil plants. For at a London fire the officer in command was amazed to note the fierceness with which a fire burned when a stream was directed on it, only to find that the pumper was picking up oil with the water from a sluice. The oil found its way into the ditch from a bombed oil storage tank.

The work of the fire department in water conservation does not end with its own efforts. It should, by available means, urge the public to keep water stored in tubs, bathtubs and other containers for use in the event of attack by incendiary bombs.

Training Private Brigades

In its role in national defense, the fire service must reach beyond its own confines. The organization and training of private fire brigades in industrial plants must be undertaken and carried to completion, for in the event of numerous fires being created by incendiary attack, the municipal fire department will have its hands full in combatting fires in commercial and business buildings and dwellings. The industrial plant may have to take care of its own fires.

Furthermore, industrial plant brigades can be of material assistance to the municipal department if they are well drilled.

Mutual Aid

In this day of high speed motor vehicles and good roads, mutual aid between neighboring municipalities, in the event of disasters of major proportions is not only possible, but is practical and highly effective. County emergency plans of cooperation have been in operation for several years, with outstanding success.

In a plan for mutual aid, an inventory of equipment available is the first essential. Then a code of signals must be formulated to secure efficient operation. With such a system properly developed, it is possible to call just such equipment and personnel as is needed.

A well ordered mutual aid plan includes not only fire appartus, demolition equipment, rescue apparatus, ambulances, first aid cars, and other special duty equipment, but also a roster of skilled artisans, such as mechanics, welders, electricians, and utility employees.

From the standpoint of fire fighting, it is imperative that hose adapters be provided so that each fire department can use the hose and hydrants of all other departments in the group.

It is highly beneficial for an emergency plan, or mutual aid organization to carry out mock musters, so

Oil Works Constitute a Constant Menace When Exposed to Enemy Attack. British "Tommies" Look On as an Oil Fire They Started Gains Headway.

that in the event of an emergency, confusion will be avoided.

Auxiliaries

No peace time fire department has the manpower to handle situations brought about by air attacks. In London it was necessary to develop an auxiliary force of fire fighters which outnumbers the regular department by twenty to one. An auxiliary force must likewise be established in American cities, and trained by the regular fire fighters.

Members for such an auxiliary force may be secured from among

Fire Wardens and Watchers in London Spot an Incendiary Bomb and Go Into Action.

pensioned firemen, civil service eligibles for the fire department, members of veterans, civic, fraternal and similar societies; members of trade unions and others employed in certain industries; tradesmen and others whose work does not take them from the district.

As noted previously, these auxiliaries must be trained by the regular department. Instruction courses should include the following: fire prevention, fire fighting, fire alarm operation, characteristics and functioning of incendiary, high explosive, and other types of bombs; detection and prevention of sabotage and arson; use of fire apparatus and various types of fire fighting tools; first aid and rescue work. The same training that is given regular firemen should be followed as closely as possible in these training courses. That is, the course should cover use of standard and mobile equipment as noted previously; use of hose and ladders; types of extinguishers, gas masks and other equipment.

Auxiliaries, properly trained, have proven themselves very capable fire fighters abroad. The experience here should be similar.

The auxiliary force should include look-out men, or spotters, who are capable of handling incipient fires.

Normally, the first duty of the fire department is to save life, and to accomplish this effectively in the event of air raid requires both equipment and training. Each incident is a problem in itself and no general instructions might be given which could be applied to every case. But life saving does not include only the rescue of persons in difficulty. It includes preventive measures as well. In this category falls evacuation drills. Such drills should be conducted in schools, office buildings and other places where large numbers of persons congregate or are housed. Evacuation drills should be conducted under the direct supervision of firemen of the regular force, if possible.

Of utmost importance to the safety and health of a community is the maintenance of its utility service. Electric power, gas, water and transportation facilities, as well as oil supply, are vital to the operation of a municipal corporation. The protection of these utilities is one of the most important tasks of the fire service. Insistence upon good housekeeping, that is, the removal of waste and rubbish, and keeping of extinguishing equipment in good condition are essential requirements, in the protection of these utilities. Oil plants, because of their extremely hazardous nature, will probably be equipped with dikes and other safety features. Condition of such dikes and other emergency equipment should be checked.

Inspection Work

Periodical inspection of industrial plants, commercial buildings, places of public assembly and places of human habitation is a most essential part of civil defense. If premises are kept clean, the danger of fire spreading is reduced materially. Frequently, due to rush of work, combustible stocks are permitted to accumulate in factories, or waste materials may collect, and then in the event of fire starting, damage may be extensive. Inspection work should not only include the checking of common hazards, but the uncommon as well.

Educating the Public

It will be the duty of the fire service to inform the public in methods of cooperating with the fire departments so that fire losses may be kept to a minimum. Many agencies for such public education are available and can be used with effectiveness. The use of newspapers, radio, and speakers from the fire department, are all in order. Informing the public on what to do to minimize fire hazards, what precautionary steps they should take to guard against fires from incendiary bombs, and what to do in the event of a serious fire situation should all be part of the program. Fire department members may address clubs, schools, business meetings and fraternal society gatherings to spread the doctrine of fire safety. Radio addresses are particularly effective in accomplishing this end.

In the larger departments, a speakers' bureau may be formed. Men of ability as speakers should be selected as members of the bureau. Not only can they instruct the public in fire defense, but they can develop cooperation on the part of the public and industry, and commercial and other groups in reducing fires.

Conclusion

The fire service has been fully aware of the great fire hazards brought about by modern warfare, and has been conscious of the responsibility it would have to bear if this country were brought into the world-wide conflict. Four years ago—long before the war actually started—the International Association of Fire Chiefs appointed a committee of its members to study the subject of incendiary attacks and sabotage. This committee has not only been active in the interim educating the fire service on the problems to be faced, but has cooperated with the War Department and with the Advisory Committee on Fire Defense of the Office for Emergency Management in preparing instructional material designed to strengthen the fire defense of the nation.

Today the fire service is rapidly preparing for the work before it, and when the call comes it will be found ready and willing. It awaits the opportunity of matching the splendid courage, the efficiency of its brothers in the British Isles.

A MESSAGE

to the Fire Service from F. H. LaGuardia, Director, Office of Civilian Defense

To the Fire Service—

IT has been aptly said that the nation's fire service forms the first line of civilian defense. In the event this country were subjected to aerial attack or widespread sabotage resulting in fires, the personnel of fire departments in effected areas would be called upon to perform yeoman service. Both men and equipment would be put to the grueling test of countless hours of continuous service.

Responsible fire officials in a few cities have already given considerable thought to the question of coping with such an emergency should it arise. This had not been done generally however, and therefore, I call upon you in my capacity as U. S. Director of Civilian Defense to take adequate steps to bring your departments up to full peacetime strength and to prepare a plan of action for training an emergency auxiliary corps to supplement the regular personnel of your departments.

The Office of Civilian Defense has virtually completed plans for a national civilian fire defense program. We have studied types of auxiliary fire fighting equipment, prepared estimates on the amounts of this equipment which would be needed in various sized communities and are working on the syllabus of a course of instruction for auxiliary fire fighters. This information will be made available to you as soon as possible. Meanwhile, I urge you to call on us whenever you feel that our services will be helpful to you in formulating fire defense plans for your cities.

The excellent fire protection service performed by American fire departments under peacetime conditions has given the civilian population a feeling of comfortable security. They are looking to you and the members of your departments to provide that same high type service in the event of a national emergency. I KNOW YOU WON'T LET THEM DOWN.

F. H. LaGuardia

Washington, D. C.
Aug. 2, 1941

F. H. LaGuardia,
U. S. Director, Civilian Defense.

This message was prepared especially by Mr. LaGuardia for transmission to the Fire Service through the columns of FIRE ENGINEERING.—Editor.

Preparing Fire Defense for War Emergency

Outline of Instruction which is Recommended for Firemen

THE firemen will play a major part in Civilian Defense, and while they will not be expected to assume responsibility for all its branches, there are many phases which will concern them, including,

High Explosive Bombing.
Incendiary Bombing.
Arson and Sabotage.
War Gases.
Smoke Screens.
Industrial Speed-up.
Excessive Storages.
Hasty Construction.
Relaxed Vigilance.

High Explosive Bombing

It is hoped and believed that the general use of high explosive bombs against this country is unlikely.

The very considerable cost of the bombs, their weight and the long transport necessary are discouraging to indiscriminate use. These bombs are generally reserved for specific military objectives.

So long as this belief is tenable, the great expense and extensive training for defense against such attack appear unwarranted.

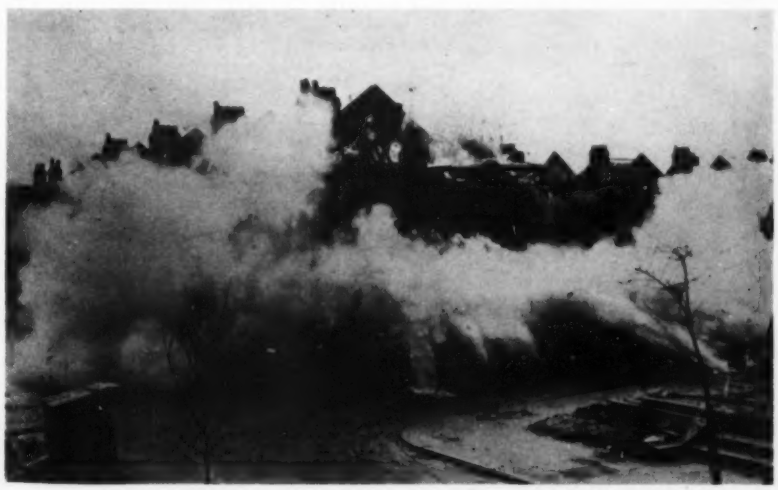
If we may, at least for the present, regard such bombing as improbable, we need not provide against roads made impassable by bomb craters and demolished buildings, ruptured water and gas mains, communications lines and centers.

In any event, our fire service is prepared and experienced in long stretches of hose and relay pumping to bring water from distant mains which are still in service, or from natural or emergency sources.

Further, while our emergency and rescue squads would expect to render full assistance, it would doubtless be the responsibility of another branch of Civilian Defense to take general charge of necessary operations at bombed locations through rescue, first-aid and demolition squads organized for the purpose.

Among the county organizations in this country which have done outstanding work in preparing for war emergencies should be included the Nassau County (New York) Fire Commission. The Commission has been conducting a program of defense preparation dating back to the start of war in Europe, and the results therefrom have been most commendable.

Recently the Commission issued a pamphlet compiled by them on "The Fire Service in National Defense." So practical, so useful is this document that the editor of FIRE ENGINEERING takes pleasure in presenting to its readers a lengthy excerpt of it.



When a Small High Explosive Bomb Strikes a Building: Note Collapsing Walls of Brick Building.

War Gases

Protection against war gases is likewise the duty of other services, with the issuance of masks and the establishment of necessary warning systems.

There has been little use of gas in the war so far. If it should be resorted to, it is probable that the types would be confined to heavy acid gases, used with due consideration for ground and air temperatures, humidity and wind velocity.

Tear gases, and those causing local irritation, coughing and sneezing might be used to harass people, and perhaps especially firemen so as to hinder fire fighting operations in the event of incendiary bombing.

Lung irritants, vesicants and paralysants are intended to cause casualties and generally spread fear.

Herewith are charts showing the means of detection and identification of the various gases, their characteristics, symptoms and first-aid treatment.

Protection against contamination of otherwise normal air, not exceeding two percent of the gases most likely to be used, but not including ammonium nor carbon monoxide, is afforded by the regulation army mask as well as all combination canister masks in fire department use. And, of course, oxygen breathing appara-

tus and air line masks, properly used, protect regardless of the nature or concentration of the contaminant.

Smoke screens, of which the most popular today is perhaps phosphorus pentoxide, might also be used to harass and retard fire fighting operations.

This produces a dense white smoke which reflects and refracts lights used to penetrate it, but is not poisonous, and it is only a question of degree with firemen, who are accustomed to meet smoke in their work.

Incendiary Bombing

The past year has proven that fire is a major weapon in this no-front war.

It is generally believed that air-set fires would be entirely feasible here, because some of the planes of today have a cruising range, without refueling, of 7500 miles and a carrying capacity of two thousand of the type of incendiary bomb in general use.

While the present war has developed fire as a weapon to a science, its use is not new.

Toward the end of the World War there was a limited use of fire bombs, dropped by hand over the side of aeroplanes, such as oil in solid or liquid form, saturated waste or rope, phosphorus, metallic sodium, thermite and magnesium. However, these bombs were generally quite heavy and, with the range and weight-carrying capacity of aeroplanes extremely limited, their use could hardly be considered an important factor, much less a major weapon as they are proving in 1941.

While such bombs as white phosphorus, gasoline, oil, solid oil or metallic sodium or potassium might be used to a limited extent today, probably for special targets, the type in general use for the indiscriminate distribution of fire is called the electron bomb.

Electron Bombs — The electron bomb, being the one most likely to be met, and which requires especial handling, must be discussed more fully.

The size generally used is a cylinder two inches in diameter and nine inches long. It is a metal casing con-

TABLE I—SUMMARY OF IMPORTANT CHEMICAL AGENTS (Other than smoke and incendiaries)

PROPERTIES	VESICANTS		
	Mustard Gas	Lewisite	Ethyldichlorarsine
1. Common Name	Bis Beta-chlorethylsulfide	Beta-chlorvinyldichlorarsine	Ethyldichlorarsine
2. Chemical Name	HS	M-1	ED
3. CW Symbol	Casualty agent	Casualty agent	Casualty and harassing agent
4. Tactical Classification	3 to 4 days in open; 1 week in woods	24 hours in open; 2 or 3 days in woods	1 to 2 hours in open; 2 to 6 hours in woods
5. Persistency summer	Several weeks both in open and in woods	1 week or more	2 to 4 hours in open; 12 hours in woods
winter	Like garlic or horseradish	Like geraniums, then biting	Biting, irritant
6. Odor in Air	Artillery and chemical mortar shell; airplane bombs and spray; land mines	Artillery and chemical mortar shell; airplane bombs and spray	Artillery and chemical mortar shell; airplane spray
7. Munitions Suitable for Use	Bleaching powder; 3% sodium sulfide solution; bury under moist earth	Alcoholic sodium hydroxide spray	Sodium hydroxide solution
8. Field Methods of Destroying	To neutralize areas, to produce casualties	To produce casualties	To produce casualties
9. Standard Tactical Use	Causes burns in skin and lung tissue	Causes burns in skin and lung tissue, and arsenical poisoning in body	1/6 as vesicant as HS. Burns respiratory tract. Causes sneezing and paralysis of fingers
10. Physiological Effect	Wash continuously with running water and strong soap, then apply carbon tetrachloride saturated with chlorine, or bleach solution. Wash eyes with boric acid or salt solution. Treatment must be given within a few minutes	Wash with running water and soap, then with 5% aqueous solution of caustic soda, followed by alcohol. Keep warm and quiet. Treatment must be given immediately. Evacuate to hospital.	Wash skin with soap and water, then with 5% caustic soda solution. Give aromatic spirits of ammonia. Evacuate to hospital.
11. First Aid Treatment	Gas mask and protective clothing	Gas mask and protective clothing	Gas mask and protective clothing
12. Protection Required	4 to 24 hours	1 hour	30 minutes
13. Time After Exposure for Casualty to Develop			

PROPERTIES	LUNG IRRITANTS		
	Chlorine	Phosgene	Chlorpicrin
1. Common Name	Chlorine	Carbonyl chloride	Trichlornitromethane
2. Chemical Name	Cl	CG	PS
3. CW Symbol	Casualty agent	Casualty agent	Casualty and harassing agent
4. Tactical Classification	1-5 minutes	1-10 minutes	1 hour in open; 4 hours in woods
5. Persistency summer	Same as summer	Same as summer	12 hours in open; 1 week in woods
winter	Pungent	Ensilage; fresh-cut hay	Fly-paper; sweetish
6. Odor in Air	Mixed with CG and PS in cylinders and LP shell	LP and chemical mortar shell; cylinders	Mixed with CN in 75-mm. and chemical mortar shell, airplane bombs and spray; with CG in LP shell
7. Munitions Suitable for Use	Alkali, solution or solid	Alkali, solution or solid; steam	Sodium sulfite solution in alcohol
8. Field Methods of Destroying	To produce casualties	To produce casualties	To produce casualties
9. Standard Tactical Use	Burns upper respiratory tracts	Burns eyes, throat and respiratory passages; cause lung edema	Lacrimates, irritates nose and throat, causes nausea and lung irritation as concentration increases
10. Physiological Effect	Keep quiet and warm. Treat for bronchial pneumonia	Keep quiet and warm. Give heart stimulants; give oxygen in severe cases.	Remove to pure air. Keep quiet and warm. Give light stimulants. Wipe off splashes of liquid on skin with alcoholic disodium sulfite
11. First Aid Treatment	Gas mask	Gas mask.	Gas mask
12. Protection Required	At once	At once or delayed	Lacrimates at once; lung action delayed
13. Time After Exposure for Casualty to Develop			

sisting of 85% magnesium, 13% aluminum and 2% copper or some other metal, added for strength, and with tail fins 4½ inches long to act as stabilizers. Inside the casing is a charge of thermite (one part of granular aluminum and three parts iron oxide), to ignite the shell. The thermite must be raised in temperature by an igniting charge, for which barium peroxide is generally used. Once ignited, nothing will stop reaction of the thermite, which burns with a temperature of close to 5000 degrees Fahrenheit.

This burning ignites the magnesium shell, which melts and vaporizes at from 1400 to 1600 degrees and burns with a temperature about half that of the thermite, or 2375 degrees.

These bombs weigh 2.2 pounds and will burn for 15 to 20 minutes.

Due to their light weight, a plane may carry up to 2000 and drop the entire load, in what is called "sticks" of 10 or 20, within an area of three miles, while traveling at 200 miles per hour.

It has been estimated that approximately 16% are effective, with the remainder landing in streets, yards or lots or glancing off buildings.

This means that even one plane might start 320 fires, within a three-mile area.

Manifestly, no fire department could be manned nor equipped, nor any auxiliary large enough to take care of all these fires at once. Therefore it is essential that the civilian population be made aware that in case of incendiary bombing it cannot depend upon the fire department to promptly respond to every incipient fire, as it does under normal conditions.

Arrangements will, of course, be made to expand the fire department personnel, to create an auxiliary emergency service, to establish an observation corps to detect hits and a fire patrol to assist in the extinguishment of small fires.

However, in case of a great number of what the British call "incidents," of which there could be thousands occurring simultaneously, it is necessary that the general public should understand the dangers and the limitations of these bombs and what to do to take care of them and prevent or limit their damage.

While there should be no idea of making light of an electron bomb, at the same time the public should know they are not as terrible as they sound and as an uninformed person would naturally regard them.

In order to be clearly understood, the action and effect should be traced from the time they are released from a plane until they become inert and harmless.

When dropped from a height of say 5000 feet, the fin or stabilizing propeller revolves, drawing out the safety pin, so that the detonating charge will go off upon impact with the roof, ground or whatever is hit. During its descent, a maximum speed of 180 feet per second is attained. The weight and velocity is sufficient to penetrate the average roof, starting a fire in the attic or possibly deeper into the house if the attic is not substantially floored.

Heavy slate roofs with a good pitch may cause the bomb to glance off, or, in the case of a flat roof of especially strong construction and covered with a layer of two or three inches of sand, it may resist and prevent burning through.

The first rule of precaution is to see that attics are kept free of the usual storage of discarded combustible materials which would be immediately ignited by radiation of the intense heat of the burning metal.

A strong attic floor will take perhaps five minutes to burn through, so there is ample time to minimize the damage if the striking of the bomb is followed by immediate detection and action.

In attacking the bomb, it should instill confidence to know that this type does not explode.* They do, however, sputter and throw off small particles of burning metal and radiate intense heat.

As has been stated, the thermite charge, or core, inside the magnesium shell, cannot be extinguished, but inasmuch as this part is completely consumed within fifteen or twenty seconds of its ignition, it is rare that anyone would get to the bomb until all that is left is the burning magnesium.

This metal, when burning and in molten form, has the property of decomposing water into its component chemical parts of oxygen and hydrogen. The resultant effect of the application of a stream of water is the increasing and speeding up of the burning by the utilization of the pure oxygen extracted, and, in addition, the danger, if in a confined room or space, of a violent explosion of the free hydrogen released.

Magnesium requires oxygen to perpetuate the burning, and can, therefore, be smothered by the use of a finely divided powder such as talc.

British Shopkeepers Are Drilled in the Use of Stirrup Pumps for Extinguishing Incipient Fires from Incendiary Bombs.

*Editor's note:—Recently German airmen have dropped magnesium bombs of which an occasional one is charged to give a mild explosion, sufficient to seriously injure the person who may be handling it.

TABLE 2—SUMMARY—SYMPTOMS AND FIRST AID TREATMENT OF CASUALTIES CAUSED BY EXPOSURE TO CHEMICAL AGENTS

SYMPTOMS IN ORDER OF SEVERITY	TYPE OF AGENTS	AGENT	SPECIAL PECULIARITIES	TIME OF APPEARANCE OF SYMPTOMS	FIRST AID TREATMENT
Irritation of eyes; Copius flow of tears; Blindness (temporary)	Lacrimators	Chloracetophenone	Burning sensation on skin	Immediate	Remove temporarily from gas atmosphere; have man face wind. He should not rub his eyes. Bathing eyes with boric acid solution or bicarbonate of soda solution or even plain cold water helpful. Symptoms shortly disappear. Do not evacuate.
		Brombenzylcyanide		Immediate	
		Chlorpicrin (ordinary field concentration)	May cause vomiting	Immediate	
Irritation nose and throat; Watery discharge from nose; Coughing; Pain at base of nose; Severe headache; Nausea; Mental and physical depression	Irritant Gases (Sternutators)	Diphenylchlorarsine Diphenylaminechlorarsine		Irritation immediate; other effects may be delayed 30 minutes or longer	Put man at rest, loosen clothing; bathe nose and throat with salt water or bicarbonate of soda solution. Breathing chlorine as given off from bottle of chloride of lime beneficial. Keep away from heat. Mild cases need not be evacuated; more serious cases should be.
Burns on body	Incendiaries	White Phosphorus	Burning particles adhere to flesh	Immediate	Immerse affected part in water to stop burning of phosphorous and pick out phosphorous particles from flesh. Apply mud or damp earth as temporary expedient if water not available. If copper sulfate solution available, apply immediately. It forms coating over phosphorous particles; stops their burning and makes them readily visible so that they may be picked out. Evacuate severe cases.
		Thermite and solid oils	Cause heat burns—set fire to clothing	Immediate	Other incendiaries—treat as any ordinary burn—bandage.
Irritation nose and throat; Coughing; Difficult breathing; Pains in chest; Retching — vomiting; Strangulation; Blue pallor—lips, ear lobes; Grayish pallor face	Lung Irritants	Chlorine	Intense irritation of throat; violent coughing	Immediate	Remove man from gas atmosphere; loosen clothing; keep at absolute rest lying down; do not allow to walk; keep warm with blankets, hot water bottle, etc.; give non-alcoholic stimulants, hot coffee or tea; administration of oxygen frequently required in severe cases; evacuate to aid station as soon as possible.
		Chlorpicrin (high concentration)	Lacrimation and vomiting	Usually immediate	
		Phosgene	Non-irritating except in high concentration	Often delayed	
Eye Effects: Irritation; Inflammation of lids; Inflammation of cornea; Blindness (usually temporary; rarely permanent) Skin Effects: Redness or rash, Intense itching; Blisters; Ulcers; Granulation and sloughing of tissue	Vesicants*	Mustard gas	Skin burns not painful; no effect noticed when exposed to gas, hence its insidious character	Delayed Vapor—2 to 6 hrs. Liquid—15 min. to 1 hr.	If face has been exposed to either mustard or Lewisite vapor, bathe the eyes, nose and throat with solution of boric acid, bicarbonate of soda or common salt; and if vapor has been breathed, treat and handle as for lung irritant casualty. Skin burns: Mustard vapor—Immediate soap and water bath may prevent or lessen casualties; but no treatment is of much value after long exposure to vapor. Mustard liquid—Swab affected area repeatedly with oily solvent, such as kerosene, straight gasoline (not containing lead tetraethyl), lubricating oil or carbon tetrachloride (pyrene),—using fresh cloth or cotton for each swabbing. Then follow with thorough scrubbing with soap and water. (Weak solution of chloride of lime, or "bleach", may be used instead of oily solvent; but this solution is irritating, and must be removed in subsequent washing).
		Lewisite	Vapor causes sneezing, often at once		
			Liquid—Burns first appear as grayish splotches	Delayed—15 min. to 1 hr.	Lewisite vapor—Scrub thoroughly with soap and water; and apply dressing of ferric hydrate paste.
			Burns not painful		Lewisite liquid—Apply hydrolyzing agent, such as 5% solution of sodium hydroxide (caustic soda); scrub thoroughly with soap and water; and apply dressing of ferric hydrate paste.
			Secondary effects—arsenic poisoning		Supply fresh uncontaminated clothing; and evacuate all but the most minor casualties from any vesicant as soon as possible.
Faintness, dizziness, dryness of throat, rush of blood to head, unconsciousness, death	Paralysants	Hydrocyanic acid Gas		HCN even in low concentration usually fatal in few minutes.	Respiration is **one** vital requirement. Remove patient to pure atmosphere, and begin artificial respiration **immediately.** Dashing cold water on face and chest may help to restore breathing. If available, and during artificial respiration, have patient breathe fumes of ammonia or of amyl nitrite. (Additional oxygen not necessary).
Blurring of sight, weakness of knees, roaring in ears, pain in stomach, sweetish taste, muscular weakness, unconsciousness, failure of respiration, death, Cyanosis; and usually bluish or red splotches on skin.		Carbon monoxide		CO being odorless is frequently not detected in time to avoid it. Generally fatal.	Remove patient to pure atmosphere, and, if breathing has ceased, begin artificial respiration immediately. Dashing cold water on face and chest may help to restore breathing. Additional oxygen vitally necessary; and, if available, administer oxygen-carbon dioxide mixture. Watch out for relapse.

*Note:—All the vesicant agents are extremely toxic. If breathed, they cause severe inflammation of the lungs likely to result in bacterial infection and pneumonia. For effects of breathing, First Aid as prescribed for lung irritants should be rendered.

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If the bomb is in the open, where a stream may be played upon it from a safe distance, it will consume itself in one-tenth of the time required unaided by the oxygen supplied by the water, and when it is consumed we have no greater hazard than a red hot sash weight and the ordinary fires in surrounding materials which have been caused by radiated heat, sparks of burning metal and the running of molten metal.

However, our important problem is bombs which are not in the open, but which have landed in confined spaces such as attics, or other top floor rooms of buildings.

With the knowledge of the hazards involved and what to expect, our simplest and best advice for preparation and extinguishment is as follows:

Protective clothing of incombustible material should be available, including heavy leather or asbestos gloves and a good grade of sun glasses to soften the glare of burning magnesium, which is best described as a continuous burning of photographers' flashlight bulbs or powder.

Dry sand should be kept to cover the bomb and a separate pail with three inches of sand on the bottom into which the bomb may be placed to harmlessly burn itself out when possible.

A shovel and hoe with ten-foot handles should be on hand, with which to handle the sand and to pick up the bomb.

There should also be kept an emergency barrel or other container of water of not less than ten gallons in case of broken water mains or drainage by the fire department, and also a means of expelling in the form of a spray or water-fog, to wet down surrounding materials. For this purpose a stirrup-pump and garden hose might be used, but only with a fine spray nozzle, or a pump type fire extinguisher or knapsack tank.

The British have also devised several types of so-called snuffers and bomb handling appliances, most notable of which is an 18-inch, cup-shaped wire mesh, covered inside and out with heavy asbestos and attached to a long handle. This is placed over the bomb, after which a shovel is placed under it and the bomb carried to a place where it may safely burn out.

Another is of asbestos-on-mesh, with the appearance of a carpet sweeper and with a lever operated from the handle by which the bomb can be picked up, entirely enclosed in the device.

Still another, but not affording as much protection to surroundings, is a long handled pick-up with much the appearance of a tree-trimmer's clippers.

The advised handling is to approach the bomb with caution, but confidence, equipped with as much protection to the person as is available. Cover it with dry sand, place the shovel under it and drop it carefully into a bucket or other container which has three inches of dry sand on the bottom, add more sand on top of it and carefully remove the container from the building. Then return to extinguish with water any fires started at the point the bomb landed, if there was no one else on hand who could attend to this with the spray nozzle while the bomb operation was being conducted. There should be a helper, as it is not a one-man job to handle these bombs because of the danger of the fires started getting beyond control.

Thermite Bombs—In the event bombs made entirely of thermite, in thin metal containers, should be used, it is generally believed they would be of much larger sizes and reserved for special targets such as military objectives and industries, either dropped from the air or placed by saboteurs. They cannot be extinguished, and all the fire department can do is remain at a safe distance, wet down surroundings and speed its burning with heavy streams and when it is consumed, tackle the fire as one of similar extent from any other origin.

Phosphorus Bombs—White Phosphorus is a wax-like, yellowish substance, which burns spontaneously in air. It is usually packed in sticks ½" thick and 6" long under water.

When exposed to air it dries, throwing off poisonous fumes until it bursts in flame. It then burns with a deep yellow flame and a heavy white vapor. This vapor is frequently used as a smoke screen, is known as phosphorous pentoxide and is not poisonous.

It is not safe to touch phosphorus, as it burns painfully and the burn is very difficult to heal.

Here's What Happens When Water Strikes a Burning Magnesium Bomb.

This chemical has been used to cause air-set fires, usually in a scatter-type bomb with perhaps twenty-five clustered around an exploding or bursting charge which operates upon contact.

If it should be met, water will put it out, but it should be remembered that it will re-ignite as soon as it dries and should therefore be either carefully transported, without permitting it to touch the skin, to a place where it can destroy itself harmlessly or be finally disposed of by throwing in a body of water.

"English Calling Card"—Another means of setting fire from the air, invented by the British, is a small card or sheet of celluloid which is coated with a solution of phosphorus in carbon bisulphide. This deposits a film

of phosphorus over the card and as it will ignite as soon as it is dry, it must be kept under water until used, but it is so light that many thousands can readily be carried by a plane and when dropped they float down over a wide area and on drying burst in flame and light brush, grass, grain fields or any readily ignited material with which they may come in contact.

"Molotov Breadbasket" — Another scatter-type bomb is so-called because it was first used by the Russians in Finland. It consists of a number of separate bombs, which may be of any type, tied together around a bursting charge similar to the phosphorus clusters.

Oil Bombs—The addition of 6% of aluminum sterate to benzol, naptha or other petroleum products causes it to jell, and this product, with an igniting charge, has been used to start fires in large factories and other industries, but its weight and the necessity for a direct hit have resulted in neither this nor the liquid oil bomb being used to any great extent in the current war. In a limited way it has been used, with metallic sodium, which bursts in flame on contact with water, to start fires around wharves and shipping.

Students of the Strodes School, Surrey, England, Are Shown How to Extinguish Magnesium Bomb Fires.

Arson and Sabotage

This is a subject about which we must be eternally vigilant. Preceding our entry into the last war, there were many cases of sabotage for the purpose of delaying the production of munitions and all other defense materials.

Fire and explosion are the favorite weapons of subversive agents.

It is our duty, as firemen, to aid all of the industries under our protection in avoiding such occurrences, to advise and cooperate with them in preventive and protective measures, in preparing to cope with any situation which might arise and to carefully investigate any fires or the slightest indications of attempts to start fires or to damage or make inoperative defensive equipment, and to preserve and guard evidence to the end that the perpetrator may be brought to justice.

General Fire Prevention

In plant expansion, under emergency operations, over-crowding is not unusual, new and severe hazards

TABLE 3—IDENTIFICATION OF AGENTS

Agent	Symbol	Odor	Other Immediate Effect
Mustard Gas	HS	Garlic; horseradish	None
Lewisite	M-1	Geraniums	Nasal irritation
Ethyldichlorarsine	ED	Biting; irritating	Sneezing; eye and nasal irritation
Phosgene	CG	Ensilage; freshcut hay	Coughing; tightness in chest; eye irritation
Chlorpicrin	PS	Sweetish; fly paper	Lacrimation; nose & throat irritation; vomiting
Adamsite	DM	No pronounced odor	Canary yellow smoke haze; headache; vomiting
Diphenylchlorarsine	DA	No pronounced odor	Sneezing; vomiting; headache
Chloracetophenone	CN	Locust or apple blossoms; ripe fruit	Lacrimation; irritation of skin, in hot weather
CN Solution	CNS	Sweetish; fly paper	Lacrimation; irritation of skin
Brombenzylcyanide	CA	Sour fruit	Lacrimation; nasal irritation
White Phosphorus	WP	Matches	Glow from burning particles; incendiary effect; dense smoke
HC Mixture	HC	Acrid	Dense smoke; slight suffocating feeling
Sulfur Trioxide in Chlorsulfonic Acid	FS	Acrid (strong)	Prickly sensation on skin; eye irritation; dense smoke
Titanium Tetrachloride	FM	Acrid (mild)	Very slight irritation on eyes; dense smoke

SIX BASIC PRINCIPLES FOR IDENTIFICATION OF CHEMICAL AGENTS BY ODOR

1. Do not inhale deeply. Only the nose can smell. Sniff.
2. Sniff only once. Repeated smelling dulls the sense of smell.
3. First smell, then think. The memory of odors can be trained by practice.
4. Every perception of odor must be named. Learn odors by memory of the thing smelled rather than by the name of something else. A thing is odorless only when no perception of odor is obtained.
5. After each test, breathe out strongly through the nose several times. Do not smell a new sample until the old perception has vanished.
6. Do not smoke while smelling. Smoking dulls the sense of smell.

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are introduced which should be segregated, fire fighting appliances are overlooked and not stepped up with the increased chances of fire, normal discipline of employees respecting smoking is relaxed.

Raw material storages as well as finished products may exceed the reasonable capacity of buildings, threatening floor loads, blocking sprinklers, doing away with aisles and blocking exits so as to hinder fire fighting operations.

New additions are apt to be erected without extension of original plant protection or a check as to its adequacy, thereby endangering the whole plant and, generally, in the rush and excitement of new volumes of business and of national defense, it is frequently the fire protection that is last thought of, if at all.

It is our duty to make life and property as safe from fire as we can, and to impress, not only our industries and mercantile concerns, but our householders that every loss by fire is a waste and total destruction of valuable material and a hindrance to national defense and that a fire from a so-called accidental cause is just as much a loss as one set by the enemy.

TENTATIVE PROGRAM FOR THE I.A.F.C. ANNUAL CONFERENCE

BELOW is given the tentative program for the Sixty-Ninth Annual Conference of the International Association of Fire Chiefs, to be held at Boston, Mass., August 19-22, 1941.

TUESDAY, AUGUST 19, 1941

Morning—Hotel Statler (Main Ballroom)

8-9.45 A.M.—Registration
10.00 A.M.—Conference called to order
Invocation
Address of Welcome—Mayor Maurice J. Tobin, Chairman National Fire Defense Committee
Response to Address of Welcome—Fire Marshal, Sherwood Brockwell, North Carolina
Address: William Arthur Reilly, Fire Commissioner, Boston, Samuel J. Pope, Chief of Department, Boston
Announcements
Memorial Service
Benediction
12.30 P.M.—Adjournment for Lunch

Afternoon (Mechanics Building)

1.30 P.M.—Parade—Hotel Statler to Mechanics Building
President's Message—Chief W. H. Palmer, Charlotte, N. C.
Adoption of Minutes of Preceding Meeting
Appointment of Committees
Report of Secretary
Report of Treasurer
Report of Auditors
Reading of Communications
Reports of Sectional Organizations
Reports of Standing Committees
Topic No. 1—"Can Loss of Life in Places of Habitation be Reduced?"—Sherwood Brockwell, State Fire Marshal, North Carolina
Topic No. 2—"Is the Architect Fire Conscious?"—T. Alfred Fleming, Chief of Conservation, National Board of Fire Underwriters, New York City
Topic No. 3—"Solving the Church Fire Problem."—Chief N. A. Phelan, Pittsburgh, Pa.
Topic No. 4—"Fear Prevention."—David Stroop, Secretary, American Petroleum Institute, New York, N. Y.
5.30 P.M.—Adjournment

Evening Program

8.00 P.M.—Boston Fire Department Defense Exhibition — M.I.T. Field, Cambridge

WEDNESDAY, AUGUST 20, 1941

Morning (Mechanics Building)

10.00 A.M.—Topic No. 5—"Water Supplies to Combat the Incendiary Air Raid."—Clinton Inglee, National Water Main Cleaning Company, New York, N. Y.
Topic No. 6—"Supplementary Automatic Alarm Systems in the Event of War."—Herbert A. Friede, Superintendent of Fire Alarms, Washington, D. C.
Topic No. 7—"War Emergency Preparations in Canada."—W. J. Scott, Fire Marshal of Ontario
Topic No. 8—"Manufacturers Tell of their Products"
12.30 P.M.—Adjournment for Lunch

Afternoon (Mechanics Building)

2.00 P.M.—Topic No. 9—"National Defense Through Fire Defense."—Col. Clarence R. Goldsmith, Advisory Fire Protection Engineer Constr. Q.M. Div., War Dept.
Discussion:—"What is Your Department doing on Preparation for War Emergencies?"
3.00 P.M.—Adjourn for transportation to Rowes Wharf
4.00 P.M.—Boat leaves Rowes Wharf for Pemberton, Mass.

Evening Program

Gamewell Night at Pemberton
10.10 P.M.—Return to Boston—Boats leave Pemberton

THURSDAY, AUGUST 21, 1941

Morning (Mechanics Building)

10.00 A.M.—Topic No. 10—"Protecting the Industrial Plant against Fire and Sabotage."—E. P. Coffey, Chief, Technical Laboratory, Federal Bureau of Investigation, Washington, D. C.
Topic No. 11—"Opportunities for Cooperation between N.Y.A. and Fire Departments in National Defense."—John L. Donovan, Director, National Youth Administration, Boston, Mass.
Discussion:—(a) Right of Fire Departments to Enter (1) Bonded Warehouses; (2) Military Reservations; (b) Salaries of Fire Chief compared with other municipal department heads
12.30 P.M.—Adjournment for Lunch

Afternoon (Mechanics Building)

2.00 P.M.—Topic No. 12—"Incendiary Bombs and their Control."—Major H. R. Brayton, Chemical Warfare School, Edgewood Arsenal, Maryland
4.00 P.M.—Demonstration—Extinguishing Incendiary Bomb Fires—Major Brayton

Evening Program—Hotel Statler

7.30 P.M.—City of Boston Banquet
Chairman—Maurice J. Tobin, Mayor
Toastmaster—Samuel J. Pope, Chief of Department
Speakers: W. E. Mallalieu, General Manager, National Board of Fire Underwriters, Stephens Garrity, Fire Marshal, Massachusetts, Mayor F. H. LaGuardia, Chairman, Civilian Defense Activities of U.S.A.

FRIDAY, AUGUST 22, 1941

10.00 A.M.—Unfinished Business
Report of Secretary on attendance
New Business
Selection of next year's Convention City
Election of Officers
Final Adjournment

Chief Caulfield Dead

Fire Chief Joseph A. Caulfield, whose father, Chief Peter J. Caulfield, fell dead when directing firemen fighting the Holland Mills fire, Piqua, Ohio, December 18, 1939, collapsed recently when leading firemen fighting a farm fire and died on the way to a Piqua physician's office.

Chief Caulfield was stricken with a heart attack on a farm, two miles west of Piqua, where fire destroyed a granary, cattle barn, and pump house.

Chief Caulfield, who was 41 years old, complained of a pain in his side and asked one of his crew to take him to the physician's office, but he was dead on arrival there.

He became Acting Chief of the Piqua department upon the death of his father, who had been Chief for 34 years. He was appointed Chief April 16, 1940 and had been a member of the department since 1920 and Assistant Chief for 10 years prior to his father's death.

Maryland Town Has Big Fire

A loss of $200,000 was reported after fire destroyed four buildings in the town of Prince Frederick, Maryland. The fire was discovered at night and was battled by 500 residents with buckets, as they waited for the nearest fire company, fourteen miles distant.

Four fire companies responded and were able to save the remainder of the town, aided by a shift in the wind. Two of the four companies responded from towns forty miles distant.

—Otis Smith

Civil Fire Defense in Canada

By W. J. SCOTT, K.C.*

W. J. Scott, Fire Marshal of Ontario, is in a unique position to know the needs of the fire service in wartime. His close contact with British fire-fighting authorities and his work in connection with organizing civil defense in Canada have especially fitted him to talk with authority on civil defense preparations.

In this article, Mr. Scott reviews fully the civil defense program in Canada. A close study of the work done in neighboring Canadian provinces will serve to guide us in making similar preparations in the United States. This presentation is well worth careful study.

OUR civilian defence organization in Canada was initiated when the Ottawa Government immediately at the outbreak of the war set up the Federal A. R. P. Committee which is now under the direction of Dr. W. O. Gliddon, Federal A. R. P. Officer. In September, 1939, A. R. P. organizations were instituted in the coastal provinces of Nova Scotia, New Brunswick and British Columbia, with Quebec following in 1940, and in September, 1940, the federal plan was extended to include the province of Ontario.

The Ontario Civilian Defence Committee, which was constituted by Order-in-Council passed by the Ontario Government, is under the Chairmanship of the Hon. G. D. Conant, K. C., M. P. P., Attorney-General for Ontario. Working with the Chairman is a committee of the directors of the five Services, in which the Deputy Commissioner of the Provincial Police is the Director of Police Services, myself as Fire Marshal, the Director of Fire Services, the Deputy Minister of Health as Director of Medical Services, the Deputy Minister of Public Works as the Director of Public Utilities Services, and the Deputy Minister of Highways as Director of Transportation. For the head office work of the Committee, the Superintendent of Insurance has been drafted as the Secretary and an official from the Department of Health as Assistant Secretary, while there is a further clerical staff of two provided by the Provincial Police. Also there are fourteen Regional Officers to cooperate with the local municipal authorities in the fourteen areas designated as vulnerable by the Department of National Defence as districts in which the A. R. P. Organization is to be set up. These Regional Officers are all supplied by the Ontario Provincial Police or the Ontario Department of Highways.

The preparations for civilian defence in Canada, and in particular for the province of Ontario, are very thoroughly outlined in the Handbooks published by the Ontario Civilian Defence Committee.

*Fire Marshal of Ontario. Excerpts from an address before N. F. P. A. Fire Marshals' Section and the Association of Canadian Fire Marshals, Toronto, Ont., May 12, 1941.

Civil Employees Used

Ontario has followed the principle of using civil servants for these Civilian Defence duties, and incidentally the same principle is followed by the federal and municipal authorities. There are a number of reasons for this, being briefly as follows:

(1) The Government has a greater control over the activities of the Committee than if enthusiastic amateurs were appointed who might either fail to be sufficiently diligent or go off at a tangent.

(2) When these duties are simply added to the work of men who are already full-time public servants, this avoided creating any new government departments. When there were no new jobs created and no salaries attached to this work, the Committee was in a much better position to call for volunteers from the civilian population for A. R. P. work.

(3) The directing heads of the various Services are the men whose ordinary peace-time duties are closely allied to these special war emergency problems of civilian defence and who customarily work with the municipal officials who must assume the detailed responsibilities.

Municipality the Unit of Defense

The unit of the civilian defence organization in Ontario is the municipality, just the same as it is in Great Britain, after whose famed A. R. P. organization ours is patterned. The start is when the municipality passes a resolution setting up the local C. D. C., in which normally the Chief of Police is the Controller of Police Services, the Fire Chief the Controller of Fire Services, the Medical Officer of Health the Controller of Medical Services, the city engineer or the works commissioner the Controller of Public Utilities Services and the Transportation Services. These officials are all chosen by the municipal council, but once they are appointed they work under the guidance of the appropriate provincial director as well as under the direct supervision of the local committee which is usually headed by the mayor or sometimes by some public-spirited citizen who can afford to devote his time and energies to this work.

In Ontario almost all of the municipalities in the vulnerable areas are organized under C. D. C. and are busily engaged in the training of their citizens to defend themselves and their homes. In our training scheme, all C. D. C. workers take first what is called the Basic Course, which deals with incendiary bombs, high explosive bombs, war gases, first aid, and an outline of the problems and activities of the five Services.

Volunteers Must Qualify

Only when the volunteer A. R. P. worker has satisfactorily completed the Basic Course is he given his formal identification cards, his badge and his arm band. Then he, or she, gets the training in the specific Service for which he has enrolled. For those in the Fire Services, there is a 60-hour training course given in C. D. C. Handbook No. 4, "Fire Ser-

vices Manual." This course is divided into twenty 2-hour lectures, for which each chapter in the "Fire Services Manual" provides one lecture, and interspersed with these at least ten 2-hour drill periods with the actual fire apparatus and equipment. This has to be completed before the worker graduates as an Auxiliary Fireman.

Equipment Provided by Government

Under the Canadian A. R. P. plan, the federal government provides the special A. R. P. equipment needed, and for the Auxiliary Firemen this includes stirrup pumps for handling incendiary bombs and small fires, special scoops and rakes for picking up incendiary bombs, uniforms for each fireman, along with his badge and arm band, gas mask, rubber boots, anti-gas clothing, first aid kits, etc. In addition, it is anticipated that the federal authorities will set up a compensation scheme to take care of any volunteer workers, and their dependents, where these men are injured or killed, in the performance of their duties, including the training period.

Training Program Advances

Following a meeting a couple of months ago of the fire chiefs from all the vulnerable areas, which was attended by 46 out of 49 fire brigades, the work of emergency training is now proceeding rapidly. Most nights in the week members of the staff of the Fire Marshal's Office are out aiding the local fire brigades in their lectures to Auxiliary Firemen. Incidentally, our Ontario plan for the training of Auxiliary Firemen is that first we are recruiting and training a class of recruits at least equal in number to the Regular Fire Brigade and who get substantially the same training as a recruit fireman. In an emergency these first classes will report to and work from the fire hall to which they have been assigned. Later, as the need becomes apparent, they will act as the instructors for the general public in emergency fire preparations, including the handling of incendiary bombs. When the training of these Auxiliary Firemen is completed, then much larger classes are to be recruited of Auxiliary Firemen for each Warden's and First Aid Posts that are established throughout the municipality and whose duties will include patrols of the streets in the vicinity of each post.

For Protection of Civilians

Under the Canadian A. R. P. scheme, these defence preparations are only for the protection of the civilian population. It is of course passive defence as distinct from the active defence to repel the enemy by force of arms which is the responsibility of the military authorities. Being specifically by and for the civilian population, it does not include the defence of industry which is expected to organize its own defence. Nor does it include the Armed Services who also are expected to provide for themselves.

However, the hazards of fire, from either accident, sabotage or enemy attack, have not been overlooked. Another very important federal fire committee has been recently established, the War Services Fire Protection Committee, which will advise on methods of fire prevention and fire protection in Naval, Military and Air Force establishments, and for the federal Department of Munitions and Supplies and other federal government departments. The majority of the members of the War Services Fire Protection Committee are from the federal government departments concerned, but among the civilian fire experts named to this Committee I have the honor to be the representative of the Association of Canadian Fire Marshals. The advice of this Committee will, it is hoped, be of material assistance to these Services and elsewhere, to aid in reducing fires that might interfere with the war effort.

San Pedro, Calif., Has Large Waterfront Fire

A blaze recently destroyed nearly 800 feet of wharves on the waterfront at San Pedro. Including the structures ruined was the $100,000 Los Angeles Harbor Department wharf. Ten pieces of motor apparatus and three fireboats, aided by Coast Guard cutters and patrol boats, operated on the fire.

Adoption of Fire Prevention Ordinance Urged

Charles W. Schoelzel, Chairman of the Fire Prevention Association of the National Association of Insurance Agents, and W. E. Mallalieu, General Manager of the National Board of Fire Underwriters, recently launched a nation-wide program seeking to strengthen national defense through wide adoption of a comprehensive fire prevention ordinance.

Mr. Mallalieu pointed out that the National Board of Fire Underwriters, at its annual meeting in May, approved a plan to seek adoption and enforcement of its Suggested Fire Prevention Ordinance in cities throughout the country. This ordinance would give adequate authority to fire departments to make inspections and require suitable safeguards in the storage and handling of volatile and flammable materials. It would provide for the creation of a bureau of fire prevention in the local fire departments and would give the bureau authority to enforce all laws and ordinances covering:

1. The prevention of fires.
2. The storage and use of explosives and flammables.
3. The installation and maintenance of automatic and other private fire alarm systems and fire extinguishing equipment.
4. The maintenance and regulation of fire escapes.
5. The means and adequacy of exit, in case of fire, from factories, schools, hotels, lodging houses, asylums, hospitals, churches, halls, theatres, ampitheatres and all other places in which numbers of persons work, live or congregate.
6. The investigation of the cause, origin and circumstances of fires.

What Preparation for Civil Defense?—Part I

A Symposium

IN an effort to secure a nationwide picture of what is today being accomplished in the way of civil defense, FIRE ENGINEERING recently made a mail survey of over two hundred cities large and small, and located in all parts of the country. Questionnaires were sent to Fire Chiefs asking specifically how far the local defense program had advanced, what it included, and what suggestions might be made for its further development.

The two hundred odd replies received showed activity in varying degrees. Some inland cities are doing practically nothing while others, mostly along the seaboard, are taking their work seriously. Apparently the public in the central part of the country is less affected by hysteria than those in the East and around Washington. They seem to look at the problem calmly and with apparent realization that attack or invasion, contrary to the claims of drumbeaters, is still remote.

In some cities the defense committees do not include the Fire Chief, though such cities are in the minority. In almost every instance where the Fire Chief heads the committee, or has an important part on it, a constructive program is being carried out efficiently and without delay.

That the fire department should be brought up to strength before special auxiliary fire equipment is secured seems to be the opinion of those who have expressed themselves on the subject. Some would like to have the federal government provide the money for new apparatus, while others are going ahead with plans for municipal purchase.

With regard to defense programs, considerable attention is being given to prevention of sabotage. This feature is highly important, for sabotage is a constant menace, even though this country does not start a shooting war. Sabotage was severe during the World War. It promises to be more intensified during the current war.

The first group of reports presented herewith constitute Part 1 of the symposium. Part 2 will appear in the September issue of this journal. The Editor wishes to express his deep appreciation to all who have contributed to this interesting discussion.

New Rochelle, N. Y.
Oscar A. Grab, Chief

Our city has formed a civil defense unit. Classes have been formed and are now in active training. They are being instructed by officers and men of the Bureau of Fire in fire fighting methods, inspections, etc. 150 men comprise these classes. From this group various men will be selected for special work such as pump operators, aerial ladder men, drivers, etc.

The local committee is headed by our Mayor and we have an Executive Director of the New Rochelle Defense Council. The Chief is not represented on the local committee. Instructions, however, have been given by the Mayor and Executive Director of our Defense Council not to interfere in any manner with the Bureau of Fire.

The bureau has listed in its files anything and everything that might be of use in case of conflagration. The list includes the names of doctors, nurses, first aid corps; information on housing, shelters and on every kind of equipment such as trucks, cranes, winches, blasters, lighting equipment, cutting torches, etc.

Our local program is developing and functioning 100 per cent.

Tuscaloosa, Ala.
E. L. Matthews, Chief

A committee has been appointed by the Governor, but so far it has done nothing that I know of.

The Fire Department was left off this committee. However, we are making plans to organize an industrial watchman's school. We have contacted all of our manufacturing plants and every last one of them has promised to send from one to four watchmen and guards to our school.

We have planned to give a fifteen hour training course in what a watchman should know in guarding against fire and sabotage. After the course has been completed, a certificate will be awarded to each person who finishes it.

The school will be conducted by Fire Department instructors with the cooperation of the Division of Vocational Education of the State Department of Education.

Chattanooga, Tenn.
Robert Jones, Chief

At present time plans for forming a civil defense unit are still in the making and a complete report cannot be made at this time. Other than the defense industries' program of fingerprinting and photographing their employees and a stricter program of fire inspection work, complete details have not yet been worked out.

The defense until will be headed by city department heads and by several prominent citizens. The Fire Department will be represented on the committee, and as is the case in England today, will be expected to play an important part in the civil defense unit.

Dayton, Ohio
Joseph A. Kirby, Chief

We have charted a great deal of information on industries engaged in national defense. Our officers secured this information so that the Fire Department would be familiar with the layout in the event of an emergency.

Many of our plants are inaugurating a fire defense program on their own initiative, forming a volunteer force from their employees. We give them complete cooperation in this work.

Montgomery, Ala.
C. L. Ingram, Chief

We have in the process of formation a training school for night watchmen of various industrial plants where the men will be taught fire fighting and fire prevention and how to call the fire department, in the event of fire, by telephone or by the box system, thereby eliminating delay.

The Fire Chief, along with the Fire Department Drillmaster and assistant chiefs, is sponsoring this program.

Memphis, Tenn.
Irby Klinck, Chief

The city of Memphis has formed a civil defense unit headed up by Colonel Koone Waring, President of the Memphis Street Railroad Company.

Plant fire brigades have been formed in all plants in the city and in surrounding territory. A course in fire protection is given daily at the fire headquarters.

The program has reached an advanced stage and we are very much encouraged.

Waterbury, Conn.
Thomas F. Cavanaugh, Chief

We have a defense committee. On June 15, we had a demonstration in the city with the medical unit and the boy scouts figuring prominently in the way of providing first aid. The entire off duty Fire Department force was summoned by the blowing of factory whistles. The State Police were also summoned from the various barracks and appeared in "jig time" with their emergency kit.

Most of the firemen have received instruction in first aid work through a course of evening study under the supervision of the surgical staff of the medical association. A member of the department attended the Chemical Warfare School in Maryland. Our Drillmaster has appeared at all the meetings of the state defense council and has imparted to its members the results of his experience and training. In addition to this, the Fire Marshal has appeared before nurses attached to the various hospitals and has outlined to them the proper action to take in the event the hospitals are bombed.

The local unit is headed by our Mayor. He is planning to appoint fire wardens along the lines of New York's plan. The demonstration in Waterbury was marked by great success and received unlimited endorsement from the State Police Commissioner who is the real head of defense activities in the state. Names of a number of firemen have been submitted to the State Police for special duty in time of trouble.

The Chief of the Fire Department is a member of the Advisory Board as is the Superintendent of Police. Waterbury is providing ammunition for the army and our plants have special police protection and guard service at all hours of the day and night. Special attention is given to the possibility of sabotage.

We follow the viewpoints of Mayor LaGuardia of New York, National Defense leader. We have great faith in his advice and suggestions. When we read of any of his ideas in the newspapers we try to follow them by issuing an order that carries with it whatever he deems worthy for fire departments to arrange for.

Ann Arbor, Mich.
Ben J. Zahn, Chief

Nothing has been done in our city other than the discussions which have taken place in our own department regarding emergencies which might arise, available water supplies and use of discarded equipment.

An emergency service corps is being organized in the boy scout organization to help in the event of disruption of water mains, telephone systems, etc. More precautions are being taken around the department itself.

Several business places that handle grain flour and foodstuffs are warned to take precaution against allowing strangers to enter their plants.

If there were a civil defense committee in the city, there is no doubt but what our department would take an active part. Sometimes a catastrophe has to actually happen before people will believe that it can.

If an emergency were to occur, we would not want for volunteers and material to work with. I do believe, however, that the people along the eastern seacoast have more reason to show alarm than those farther west.

Middletown, Ohio
E. F. Reed, Chief

The city itself has no civil defense unit. The American Legion is trying to organize a defense council to assist in handling all emergencies, such as fire, floods, strikes, etc. To date they have enrolled about forty men and have had two meetings. The Fire Chief, First Assistant Chief and Chief of Police are all represented on this committee.

I believe that more interest should be taken by city officials and that the council should have more activities.

Kansas City, Mo.
T. J. Lynch, Chief

This city has done nothing in the way of civil defense. We have bought four pumpers and two trucks and some hose.

I have met with several railroad officials and, as a result, they have put on extra guards in their yards and shops and more water mains. We have agreed to train the Third Regiment in the use of hose and ladders. We have also trained the Police Department.

Our full-time first aid instructor has trained quite a few civilian groups.

I have asked the Chamber of Commerce to help us, but this town doesn't seem to warm up much to civil defense; I think they will soon.

Sioux City, Iowa
Carl E. Hunt, Chief

The only work done along the lines of civil defense has been in the Fire Department. We are drilling the men more and are giving them instruction on sabotage, etc.

Oklahoma City, Okla.
G. R. McAlpine, Chief

This city formed an organization back in May, 1940. We have set up extensive system of guards and fence lighting for the protection of the utilities. Fire investigation crews and fire prevention units have been appointed.

All fires are carefully checked immediately for sabotage. All guards are checked at regular intervals. The auxiliary forces of the organization are kept alive and hold meetings regularly.

The group is headed up by the City Manager as Director, with the City Auditor as Assistant Director. Board members include the Fire Chief, Police Chief, Water Superintendent, the City Engineer, the Health Director and the Municipal Counselor.

We are at present preparing a map of the city, dividing the city into districts. The map will show all churches, schools, fire stations, police stations, and public buildings. This requires a lot of work, but when finished will be complete in every detail. So much so that we could call sufficient personnel in the city to have complete control of every block.

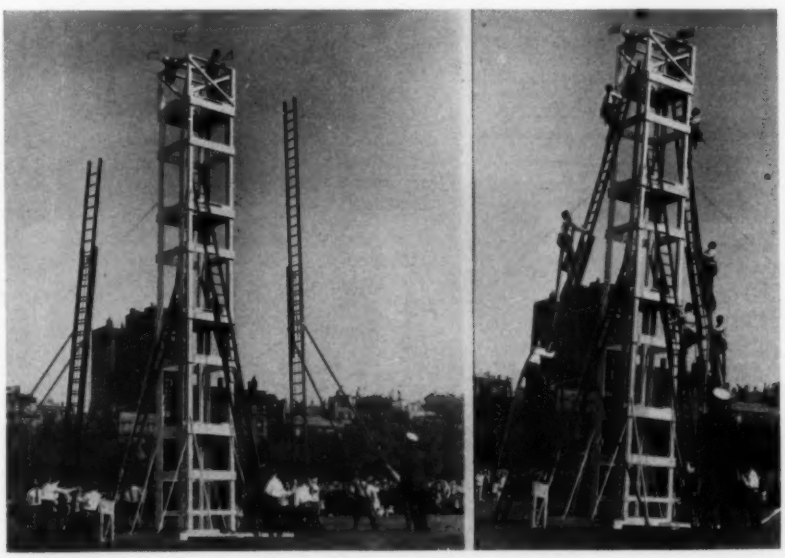
The program is developing satisfactorily, but I think it could be more effective and less complicated if it were organized along little different lines. I would have a special organization of representatives from each city block, then have a central committee made up of technical people such as auxiliary nurses, doctors, representatives of the communication and transportation companies, police, fire department and others who are especially qualified in technical fields.

As the emergency defense battalion is now organized, we have eight divisions. They are follows: Division of Management, Intelligence Division, Law and Order Units, Division of Life Conservation, Transportation and Communication Division, Fire Extinguishing Division, Technical Assistance Division and Public Health Division. Each of these divisions is organized into companies.

Jacksonville, Fla.
W. Q. Dowling, Chief

We have a city and county defense council. An auxiliary fire brigade has been formed and a survey made of all industrial plants and large buildings. We have recommended that all sources of water be made available for an emergency and have recommended the purchase of two-way portable radios. Our city fire marshal is working with National Board investigator and a member of the F. B. I., and is ever on the alert to prevent sabotage by incendiarism.

The Duval County-Jacksonville De-



Boston Has Portable Fire Department Drill Tower

Illustrated above is the portable drill tower, designed and built by the Boston Fire Department. It has proven particularly valuable in staging demonstrations of fire department operations at civic affairs. It also provides equipment for conducting drills in any portion of the city or a neighboring community.

fense Council created six staff offices which are fire, police, medical, utilities, transportation and communications. I appointed one of my assistant chiefs to act in the capacity of Defense Fire Chief. He will be a member of the Council's general staff.

The unit is headed up by F. P. Flemming and Robert H. Gamble as Co-Chairmen with R. W. Cushman as Executive Secretary. In private life they are respectively a lawyer, naval stores operator and a banker.

The program is developing most satisfactorily.

Beverly Hills, Calif.
L. B. Canfield, Chief

Our defense council has provided men and equipment for auxiliary fire units at the ratio of two and a half units for each engine company in service. Each unit consists of four men who are equipped with a sedan, 300 feet of 1½-inch hose, 1 nozzle, a plug wrench, etc. It is to be dispatched on calls after all regular men and equipment are called out.

A city councilman acts as Chairman of the defense council with one citizen and the Fire Chief as assistants. The Fire Chief is in charge of city-owned equipment and employees of all city departments.

All types of civilian committees and service committees such as Red Cross, ambulance, hospital, air raid wardens, housing, food, health and sanitation have been organized.

Peoria, Ill.
E. E. Horton, Chairman, Disaster Relief Committee

The writer is General Chairman of the Disaster Relief Committee of the local chapter of the American Red Cross.

No defense unit has been formed in Peoria. Our Red Cross Disaster Committee, however, is organized to carry on certain related duties, but would only be called into action in the event of a major disaster which might render a considerable portion of the population of the city or nearby towns homeless, destitute or disorganized. There has been conducted in Peoria under the guidance of Mr. Maurice Reddy, Assistant National Director of Disaster Relief of the American Red Cross, an institute which was attended by representatives of the Fire and Police Departments, the Illinois National Guard and Militia, the State Police, the W. P. A., and certain charities, together with the Disaster Committee of the local Red Cross Chapter, which in itself is composed of units or sub-committees designed to function in the matter of rescue, transportation, communication, furnishing of food, supplies and shelter, and the like. The purpose of the institute was a general discussion of disaster relief work with these various organizations, and to procure from them assurances of cooperation so that all these various departments and units might serve together harmoniously and understandingly should disaster arise. It is believed that this purpose was accomplished.

The Fire Department was represented at this meeting and its problems well discussed. A practical problem involving an assumed conflagration of large proportions was considered and analyzed.

While the Red Cross Disaster Committee is not primarily organized as a civil defense unit, nor presently prepared to guard against sabotage, etc., yet the Police and Fire Departments as well as the State Militia and State Police no doubt are receiving training along these lines. Should the elements of a disaster be created by some act of sabotage, the Red Cross as an organization would, of course, function.

Chico, Calif.
C. E. Tovee, Chief

A committee on defense consisting of the managers of all public utilities, the American Legion, Veterans of Foreign Wars, city officials, nurses, doctors, social welfare groups, representatives of the lumber companies, factories, gun and ammunition stores and the Health Department, has been formed.

The Water Company is making plans for auxiliary pumping plants in the event of damage to present electric pumps. The city is maintaining cisterns for the use of the Fire Department in case of damage to water mains. A character wheel 3-3-3 on the fire alarm transmitter has been installed. In a recent emergency call, 400 answered the alarm.

The local unit is headed by the Mayor, who acts as President; the Chief of Police and Fire Departments, who is Vice-President, and the City Manager, who is Secretary.

New Haven, Conn.
Paul P. Heinz, Chief

New Haven has a defense committee which is headed by the Mayor. A comprehensive plan has been submitted by a special committee and approved by the Executive Committee. The local committee is working in collaboration with the State Defense Board.

An educational program has been started by the state committee with the Air Raid Wardens School. Yale University is cooperating.

The Chiefs of both the Fire and Police Departments are on the committee. Both are members of the Executive Committee. The Fire Chief was appointed to a special committee on plan and scope with two others. He was also sent to Boston to attend Mayor LaGuardia's meeting on defense.

The local program is progressing satisfactorily. The Fire Department is organizing a training school on auxiliary fire fighting to tie in with the local defense educational plan. 132 substitutes were recently appointed to the department and will receive training at once. Civilian groups will follow.

Atlanta, Ga.
C. C. Styron, Chief

We are following the plan of Mayor LaGuardia which to date has worked down to a state regional set-up. The plan for cities has not yet been received.

The President of the Atlanta Chamber of Commerce has been appointed to direct this work, but the approved and accepted outline has not been given to him.

I believe the International Association of Fire Chiefs should recommend a plan for fire department activities and should supply all fire chiefs with material for same, urging them to organize a group of capable men to promote these activities.

McKeesport, Pa.
James C. McAllister, Chief

On June 27 of this year the local defense council of sixty-four men organized and held its first meeting. The Mayor is Chairman of the council.

All committees are very active and are rapidly getting their plans in shape to perform the duties outlined for them.

I am on the committee to instruct volunteer firemen in their duties and to appoint fire wardens for every city block.

Our program is developing satisfactorily. We are at present starting a campaign to collect scrap aluminum.

Bell, Calif.
Adolph Treder, Chief

The City Council has appointed the City Engineer as Coordinator. An ordinance is being drawn up to legalize the defense program. This is I believe, the first step. Finances for special equipment for training purposes should follow immediately.

Newburgh, N. Y.
George W. M. Brown, Chief

A committee has been appointed and we are outlining a program at the present time, establishing areas, etc.

The committee is headed by Mr. Peter Cantline, an attorney who is Chairman. Both the Fire Chief and the Police Chief are members of the committee which also includes four other members.

I believe that a definite uniform federal or state plan should be adopted. This plan could be followed by the local committees. There seems to be too much doubt and difference of opinion as to the procedure at the present time.

Knoxville, Tenn.
C. M. Johnson, Chief

Knoxville is going forward with formulated plans to guard against fire, sabotage, etc. Activity is headed by the Mayor.

The Fire Chief and the Chief of the Bureau of Fire Prevention have organized a Special Fire Marshal's Division among the various factories, warehouses, stores, etc. The management of these industries has selected one or more employees to serve as Special Fire Marshals. Their duties are to organize groups of employees to cooperate in removing all fire hazards and guard against fires and the possibility of sabotage.

A permanent meeting place has been secured where monthly meetings are held by officials of the Fire Department and members of the Special Fire Marshals' Division. In these meetings fire hazard and the possibilities of sabotage are discussed.

A great deal of interest is being manifested among these employees. At each meeting we have one prominent speaker on subjects of interest to the organization. We also show at these meetings moving pictures which are interesting and educational in line with the fire marshals' duties.

The people are slow in responding to the call for volunteers. I believe more publicity should be given to the matter of defense.

Amsterdam, N. Y.
Matthew J. Kavanagh, Chief

Nothing has been done locally as

yet. Through the Gloversville Defense Committee we are now taking a survey of all fire apparatus and equipment in the fourteen cities and villages in this vicinity. These cities include those with paid or volunteer departments.

At a meeting held in Gloversville, N. Y., in June, a committee was appointed with myself as Chairman.

Richmond, Va.

A. F. Taylor, Chief

The Governor of Virginia has formed a Fire Protective Mobilization Committee, dividing the state into twenty zones. I was appointed Chairman of Zone 8 which consists of Richmond and eight surrounding counties. This committee is striving to accomplish the following things:

1. To zone the state into twenty fire zones and to organize each zone. After reviewing the inventory and realizing the needs of a specific zone, an effort will be made to have the officials and fire departments of that zone make a strenuous effort to secure the necessary fire fighting equipment for adequate fire protection, and if possible, have enough emergency equipment in that zone which can be taken to a scene of disaster without leaving the remainder of the zone unprotected against fire.

2. To cooperate with the state and federal forest service officials in organizing sufficient volunteer fire fighting squads throughout the state that can be contacted immediately to protect the forest areas, as well as having the necessary fire equipment available to handle any emergency that might arise in fighting forest fires.

3. To make a strenuous effort in securing enough full-time instructors to visit every fire department throughout the state to educate their members, as well as the emergency squads that will be organized, in the handling of all kinds of incendiary and explosive bombs and war gas, as well as give instructions to the high schools and colleges. These instructors will be available to the big industries who have organized fire department.

4. To insist on the organization of first aid squads in each town, city and community and to make it compulsory that all instructors of first aid have a Red Cross Teacher's Certificate. All colleges and public schools throughout the state should make this training compulsory, provided it will not interfere with and cause any pupil to fail in any other subject during the school term.

5. To compel the adoption of the National Standard thread on hose couplings.

6. To recommend that auxiliary storage reservoirs be constructed on each water system throughout the state, and where it is possible have these storage tanks on high points. It is also recommended that these storage tanks be constructed of earth and cement instead of steel elevated tanks, having adequate storage capacity for emergency for not less than 24 hours, to take care of each community.

To recommend that a survey be made of all streams throughout the state in the cities and towns as well as the thickly settled rural sections, and grade suitable roads to the said streams so that fire equipment may be gotten to the water without any great delay.

7. To contact all governing officials as well as the heads of each industry in each zone to discuss the organization and the need of more fire fighting equipment.

8. To recommend that either civilians or service men be assigned for longer periods for fire fighting duty in cantonments. At the present time soldiers or marines are put in the fire fighting service for a period as short as 30 days. This is not practical as all firemen should have continuous training and should be assigned to regular fire duty for an indefinite period.

The City of Richmond has organized an Executive Committee represented by the industrial plants, the railroads and public service utilities. These representatives are to organize under each head with a chairman for each group. Both organizations are to organize volunteer departments, first aid units and whatever other committees are necessary.

We have sent two men to the New York School on Incendiary Bombs, and are now making preparations to send a man to the Chemical Warfare School in Edgewood Arsenal, Md.

Holyoke, Mass.

John H. Rohan, Chief

An educational program on civil defense has been running for twelve weeks. Meetings have been held twice each week. They have consisted of drilling with both dry and wet lines, raising ladders and using extinguishers.

The work is progressing satisfactorily. The size of the force is increasing each week. The civilians are showing great interest and the officers in charge of drills are pleased with results.

Specialists have been brought to classes to lecture and to show moving pictures.

Columbus, Ohio

Edward P. Welch, Chief

The Fire Department inaugurated classes in civil defense training early in May. The first class was composed of members of the American Legion. Later classes were selected from the list of men on the fire department eligible list. The school is now operating both day and night, and is training and organizing the personnel of private plant brigades.

The local unit is headed by Mayor Floyd F. Green with the Fire Chief and his executive staff composing the committee.

The program is proving to be very satisfactory. At the present time we have more than 125 men attending the school. We hope to have completed the training of 500 men by the coming fall.

Fifty-four new men were appointed to our fire fighting forces during the month of June.

Wilmington, Del.

William J. Lutz, Chief

The civil defense plan in this city and entire state has been well organized at the request of the Governor of the State of Delaware, Walter W. Bacon.

Superintendent of Public Safety, Andrew J. Kavanaugh of this city is General Chairman. Chief of Police Frank J. Mahoney along with Superintendent of State Police, Norman W. Purnell, are in charge of police protection and I am in charge of the fire protection in the city of Wilmington as well as in the entire state.

All manufacturing plants and im-

Here's an Old-Timer of the Eighties at Augusta, Ga.

The old steam fire engine illustrated herewith and the company members lined up in front of it, constituted a fire-fighting unit of Savannah, Ga., around the beginning of the eighties. This machine was the acme of perfection in its day.

portant buildings located within the state have been inspected and blue prints made of them. Each fire company has a copy of these plans to be used in the event of an emergency.

Irvington, N. J.
James Thompson, Chief

In February of this year a local defense council was organized with the Commissioner of Public Works as Chairman. Sixteen sub-committees were set up. The Fire Chief is in charge of local fire defense and has organized an auxiliary fire force and given them a fifteen week course of training.

All sub-committees have made their surveys and have listed their findings.

The Fire Chief has written a volunteer text book. All fire department officers are instructors. The class meets one night each week for two hours. Less than two per cent of those originally enrolled have dropped out of the course.

Our plan is working out very well. Two years ago we felt the need for emergency equipment and purchased two additional 750 G.P.M. combination pumps and two portable pumps, extra hose, etc.

My suggestion would be to set up a local fire defense council headed by the Chief of the Fire Department. The Government should purchase apparatus.

Massillon, Ohio
Edward J. Hunsinger, Chief

We have formed a defense committee with Mr. Grant Esterling, President of the First National Bank, in charge. The committee consists of twenty-two men.

The Fire Chief is in charge of all matters pertaining to fire prevention and is holding a school session each week to educate all members of the department and outsiders as well, in the proper handling of equipment in times of emergency.

All fire companies in the state have been called together at various meetings. They have also submitted a list showing the apparatus, hose, tools and appliances that can be called into service at an instant's notice. Additional hose, trailer pumps, tools and appliances are to be purchased and located at the most strategic points throughout the state. The Fire Department of this city is also responding to manufacturing plants located outside of the city, who are working on national defense contracts.

Sarasota, Fla.
H. M. Knowles, Chief

An auxiliary fire department, a police department home guard unit, a first aid unit and various other committees have been set up in our city. All the units are being organized and trained for their respective jobs.

Mr. C. F. Hart, Commander of the American Legion is General Chairman of the County Defense Unit. He has a number of sub-chairmen under him. The Fire Chief is Chairman of the Committee on Fire and Water Protection, with the Assistant Chief and Superintendent of the Water Department as sub-chairman of his committee.

Our auxiliary fire department is made up mostly of employees of the Sanitary Department, who are not subject to the draft. We have found this method of securing personnel satisfactory and recommend that other cities form such units where it is difficult to obtain the proper number of volunteers.

Lynn, Mass.
Joseph E. Scanlon, Chief

300 civil defense firemen are now in training and we expect to expand the force to 1500 as the means permit. They are being instructed in the use of hose lines and ladders, rescue work, first aid, inspections, pump operation and defense communication. District Chief Henry Haddock is in charge of this work.

The Chief of the Fire Department is the local Chairman of Fire Defense. All officers are represented in the set-up.

We are all working in harmony with one objective—to be ready if and when trouble starts.

Haverhill, Mass.
Benjamin L. Chase, Chief

An auxiliary fire force has been organized and drills held each Monday night. We have thirty-five members at present. Our goal is at least 200. Other committees have been formed but progress is slow.

The drills of the auxiliary fire force are practically the same as for the permanent force. Fifteen drills are necessary to complete the course of training.

As Chief of the Fire Department I was requested to organize the auxiliary force. On my committee I appointed four other members including the manager of one of our hotels, the Commissioner of Public Safety and an optometrist.

Most cities like ourselves have the cart before the horse. The foundation should be built before the roof. The foundation is the permanent fire force which should be brought up to the recommendations of the National Board of Fire Underwriters before other items are seriously considered. I firmly believe that our success in national defense depends largely on the size, strength and efficiency of our permanent fire force.

Grand Rapids, Mich.
Fred Higgins, Chief

Following the Spokane meeting of the International Association of Fire Chiefs, our department has been quietly working with the industries in our city which have cooperated fully. The work is along the lines of suggestions made at that meeting and of material gathered from other sources. The Fire Chief heads up this program.

We also have meetings at the headquarters of the State Police regularly.

Lexington, Ky.
Charles J. Henry, Chief

Mayor W. T. Havely of our city attended Mayor LaGuardia's convention of mayors on civil defense and upon his return appointed several committees on this subject in line with the set-up discussed at that meeting. The work is progressing very satisfactorily.

A fire college was held in our city from July 28 to 31 by the Kentucky Civil Defense Commission. Its purpose was to train volunteers in civil defense work.

The Fire Department will train 180 volunteer auxiliary firemen to be selected by the American Legion Post and the Lexington State Riflemen. These volunteers will augment our regular force of eight-three men. The Fire Department has on order special equipment to combat incendiary bombs.

Wilkes-Barre, Pa.
Charles N. Loveland, Mayor

Wilkes-Barre has a local council of defense which will organize to guard against fire, sabotage, etc. In the meantime the Fire Department is making inspections for this purpose and preparing plans. Chief Ambrose Saricks will be sent to a school at Edgewood Arsenal, Md., to receive two weeks' training. He will come back to the department and train his men. This is the plan of Mayor LaGuardia, Director of Civilian Defense. The Police Department is already operating under requests from the Government. The teacher of our Police School will be sent to the third school at Edgewood Arsenal. Further plans will be carried out as requested by our State Council of Defense.

The Mayor is heading up this work. The Fire Chief is not at present a member of the committee but additional names will probably be added and either he, or the Councilman who is Director of the Fire Department, will be made a member.

Nashville, Tenn.
J. A. Scruggs, Chief

We have not as yet organized a civil defense unit. We have, however, given every fireman a full course in first aid work and are requiring them as a unit to secure certificates in preparation for any defense emergency. We are also instructing our men in the different types of incendiary bombs, and the proper methods of handling them.

The state is preparing to set up some form of civil defense unit, and we are waiting for this to complete further plans for this department.

Brockton, Mass.
F. F. Dickinson, Chief

We are forming an organization which will later be divided into groups for the protection of the entire city. This organization will be instructed by the Fire Department.

The program is headed up by Scudder Moore, an official of a local concern who has obtained a leave of absence and is devoting his entire time to civilian defense.

Pasadena, Calif.
E. F. Coop, Chief

The civil defense unit of our city is thoroughly organized, with the Mayor and the City Manager as the executive heads. An organization chart has been compiled and appointments made to the various divisions.

The Fire Department is in charge of the fire wardens and air raid warden division. In addition to this, the Fire Department has organized from the top eligible men on the civil service lists, four squads of ten men each between the ages of 21 and 30. These men are taking a six months course in the use

of fire equipment and elementary fire fighting tactics. They receive no remuneration and are subject to call at any time in case of extreme emergency.

The civil defense plan for Pasadena is an enlarged and augmented major disaster plan which has been in effect for a number of years. The Chief of the Fire Department is designated as in charge of air raid wardens and fire wardens. These are the only units he is connected with.

We feel that our program is progressing in a satisfactory manner and is adequate for the protection of this type of city.

Up to the present time new equipment consists of one canopy cab squad car of 900 G.P.M. capacity and a London type trailer unit. Another unit similar to the latter is under construction.

Chelsea, Mass.

Charles G. Voke, Chief

The city of Chelsea is forming a civil defense unit to guard against fire, sabotage, etc. Each city department is to take care of its own defense organization. For example, the Water Department will protect the water supply and train all necessary auxiliary men for emergency work. The Fire Department will train volunteers for auxiliary fire service. All the departments will be interrelated and will cooperate with each other.

At the present time officers from both the Fire and Police Departments have been sent to an air raid precaution school by the city. These men are being trained in all defense problems and are taught various phases of sabotage, bombing, etc. These members will act as instructors of firemen, policemen and civilians after the completion of the course of instruction. The Fire Department has made complete surveys of all plans and has made recommendations for fire defense protection.

The Mayor, in conjunction with the Board of Alderman, heads up the local defense unit. The Fire Department is represented on the local committee by the Chief of the Fire Department and has jurisdiction over all fire defense factors.

The local program is developing satisfactorily. It takes time as men first have to be trained before they may impart the information to the untrained individual. I would suggest that schools be organized throughout the country so that men may be trained in all phases of national defense work so as to render service as teachers of the average citizen who is untrained and lacks knowledge of details of fire defense preparations.

El Paso, Tex.

W. E. Jackson, Chief

There has been organized a very efficient Emergency Home Defense Battalion in this city, plans of which have been approved and accepted by the National Defense Organization. The battalion will consist of about 2,000 members who will be and have been thoroughly investigated by the proper agencies.

Weekly meetings are being held and the various units are being trained in fire and rescue, maintenance of all utilities, first aid, rescue by water, wrecking of damaged buildings, fire wardens, roof watchers, transportation and all other branches of home defense.

The President of the El Paso Electric Company and a group of representative citizens are heading up the local program.

The entire plan was originated by myself and I am a member of the Executive Board of the local Emergency Home Defense Plan, in addition to being in charge of all fire extinguishing, wrecking and rescue work.

Youngstown, Ohio

M. J. Melillo, Chief

A training and educational program has been outlined within this district with the men of the Youngstown Fire Department acting as instructors in first aid and rescue classes. A complete survey has been made listing all of the fire equipment and emergency equipment in Youngstown and surrounding towns. The positions of auxiliary fire stations and observation posts have been located. We are cooperating with the industrial centers. We plan to purchase new fire apparatus in the near future.

Mr. J. Eugene Bennet, Former Judge of the Court of Appeals of the State of Ohio is in charge of this work. I am in charge of the fire defense section of the committee.

Malden, Mass.

Loran A. Keddie, Acting Chief

150 auxiliary firemen have been drilling one night a week since the beginning of the year. They have also taken the first aid course given by the Red Cross.

Post 69 of the American Legion has been designated by Mr. Joshua Day, General Manager of the Malden Electric Company, who is Chairman of the local defense unit, to sponsor the program in our city. The Fire Commissioner is represented on the committee.

I believe that the federal government should furnish funds to help equip the fire departments with the necessary appliances. They should also see that the fire appaartus manufacturers are not hampered and delayed in delivering much needed apparatus to cities and towns.

East Orange, N. J.

Charles A. McGinley, Chief

The laws of New Jersey require each municipality to establish a defense program. This has been done in East Orange by Mayor Martens with the following objectives:

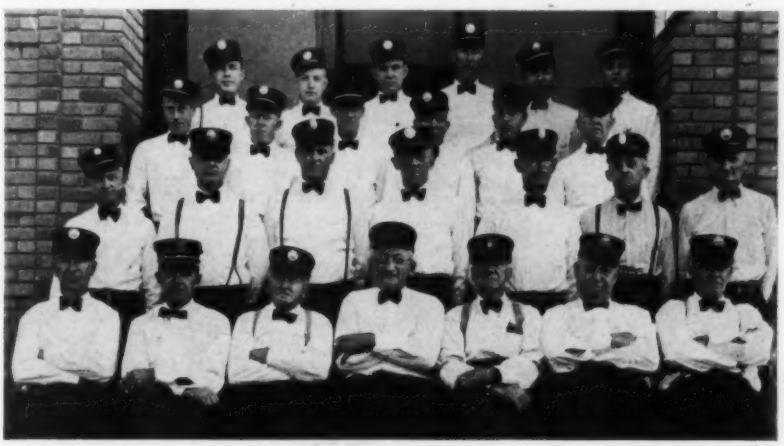
1. To create, plan and coordinate a volunteer plan of emergency assistance to meet any disasters of war or otherwise.
2. To assist the organized powers of the city by cooperating with Police and Fire Departments and other duly authorized organizations.
3. Protect life, homes, property and morals.
4. Instruct civilians in how to best help in emergencies.
5. Assist legally constituted authorities to bring to light subversive activities.
6. To provide effective means of evacuation.
7. To help supervise regular operations.
8. To aid local, state and federal authorities in providing medical supplies, food, clothing and other necessities of life during wartime or other emergency.
9. To cooperate with adjacent communities in performance of such duties.

Committees

The following committees have been set up: Committee on Intelligence and Coordination; Committee on Coordination with Red Cross Activities; Committee on Law and Order; Committee on Fire Protection; Committee on Public and Personal Information; Committee on Communications and Transportation; Committee on Streets and Highways and Committee on Water Supply.

Mr. C. Roy Dickinson, Lieutenant Colonel of the U. S. Reserves heads up the defense program. The Chief of the Fire Department is in charge of fire protection for the entire community, and is responsible for the organization of an auxiliary fire department to work with the regular department.

(*Continued on page* 478)



Members of the Seneca, Kans., Fire Department. Chief Rucker Is the Center Man in the Third Row from the Top

Mustering for Defense

Irvington, New Jersey, Department Marshals Strong Reserves in Apparatus and Personnel

By ROI B. WOOLLEY

IT was Mark Twain who said that everybody talks about the weather but nobody does anything about it.

Like the weather, there's been a lot of talk about defense and preparedness in the Fire Service, but not much has been done about it.

That's why this account of the accomplishments of the Irvington (N. J.) Fire Department, under the direction of Chief James Thompson, Jr., and his indefatigable Safety Director, Edward D. Balentine, stands out so vividly in the defense picture.

Chief Thompson and his Director became convinced about two years ago that whatever portended, it would be good business to be prepared. If no wartime emergencies arose, the preparedness would still be an asset in meeting peacetime emergencies.

Upper: Section of Class Forming Civilian Auxiliary Fire Force. Center: Searchlight Truck of the Irvington Department. Lower: Turret Car.

No particular long-range plan was drawn up except that it was agreed that one thing, above all, would be needed and that was funds. So out of each year's budget came enough of the 'necessary' to finance one after another forward step.

The first thought was to improve the city's then existing department. From the time he was made chief, in 1937, Chief Thompson worked to put Irvington up in the "Class A" rated group of cities. Well, he's done it and in doing it, he's given Irvington a head start in its preparedness program.

Between 1938 and the present, the City bought out of its Fire Department budget a number of pieces of old equipment, rebuilt it where necessary, and placed most of it in service as "reserve." When I say "reserve" let me add quickly that in every way this apparatus approaches "first line" equipment. It is maintained at top efficiency, ready for action at the tap of the gong. Not a tool or device requisite to the proper operation of each piece of apparatus is missing. Motors are turned over daily. If it wasn't for the "reserve" emblazoned on the windbreaks, you'd take them for regular in-service standard "factory jobs." Here's the list:

1 750 gal. American - LaFrance pumper, purchased from the City of Asbury Park, (N. J.)
1 American - LaFrance pumper purchased from Village of Briarcliffe Manor, (N. Y.)
1 American - LaFrance hose truck from the Town of Montclair (N. J.)

In addition, an American-LaFrance 750 g.p.m. pump of the vintage of 1912 that had been out of service and partly dismantled for about 10 years, was resurrected out of the discard.

It should be understood that in the case of this apparatus every piece had been considered "unfit for service" and wasn't even thought worth rebuilding by the original builder.

Of course before any attempt to overhaul any of this equipment could be made, Chief Thompson and Director Balentine had to have the necessary manpower, machinery, etc. to tackle the job. Knowing his men, the Chief was positive the work could be done "in the family if he could get the 'tools' "—and that's what happened. The entire rebuilding, including taking down and reconstructing the motors, was done by members of the Department, with the Chief himself, "up to his arms in paint and grease, a lot of the time," as one of his aides puts it.

A Shop Is Equipped

As the work progressed, and the need arose, Chief Thompson purchased power tools, a lathe and other machinery and fittings, which were placed in one of the Stations. Today the rear of that house rivals any well organized and equipped machine shop.

Another old Irvington unit that "had its face lifted" was a Searchlight rig. Originally a Reo, (1926) it was used as a Police Patrol and finally discarded for a new one years ago. Today this sports a re-conditioned generator capable of furnishing direct current at 120 volts up to an output of 9,000 watts. In addition to this Searchlight Truck and generator, the Department has four portable generators and one special generator mounted on the Emergency Squad car, with a total output of 14,250 watts.

But that isn't all. Another "Reserve Car" product of the Department, is a Dodge Squad and Turret Truck which is fitted with a Barton 250 g.p.m. pump and carries 1,000 feet of 2½ inch hose. The chassis was purchased new, but the men did the assembly.

The "Reserve" City Service Ladder Truck was originally purchased in 1913 and was deemed ready for the "junk yard" when the City bought

its new American-LaFrance 85 foot steel hydraulic ladder. But, no, the frugal firemen refused to part with it, put it through the shop and today it invites anybody's critical inspection.

Right now, the Repair Division is hard at work overhauling a half dozen small pumps which the Chief wheedled from one of the utility companies and which it was believed had outlived their usefulness for pumping out manholes and utility work. Any day now, they'll be found on the front end of certain of the Department's light trucks and cars used by the Telegraph and other Divisions. These cost the Department nothing and, we understand, the men are getting a big kick out of their rehabilitation.

Measured by the work done by the Fire Department repair shops of larger cities, this accomplishment may seem insignificant, but anyone familiar with the dismantling and rebuilding of fire apparatus knows that it was no small undertaking. As one officer put it; *"there were times when each Fire House looked more like an ordinary auto body repair shop than it did a Fire Station."* It should be remembered that practically all of the work was done by the Department members both during *off-duty* as well as *working-tours*. Which speaks pretty well for *esprit de corps!*

Today, Irvington has an inventory something like this:

Four Fire Stations, 23 officers, 65 paid men
1-85′ American LaFrance Hydraulic aerial
1-75′ American LaFrance Self Raising aerial
1-City Service Truck (in Reserve)
1-600 g.p.m. American LaFrance pumper
1-750 g.p.m. American LaFrance Combination Squad
4-750 g.p.m. American LaFrance pumpers (2 in Reserve)
1-1,000 g.p.m. American LaFrance pumper
1-Searchlight car
1-Turret Combination Squad Car

This is only the "mechanical" side of Irvington's defense work. What Irvington is doing in the way of an Auxiliary Fire Service is another interesting story. Before an Auxiliary Corps was started Chief Thompson and Director Balentine visited many cities in America and Canada that were working on Defense, out of which they developed complete plans for the organization. The men are recruited from healthy, able-bodied citizens who must pass investigation, medical tests, and sign a "Release" protecting the City against injury in line of duty—although it's doubtful if the City would refuse to take proper care of an Auxiliary firemen injured in line of duty. All men are photographed and finger-printed, are given special membership cards and a complete course of training, in mimeographed form for study, as well as the necessary drills and evolutions.

Lessons are conducted by the officers and members of the Department who teach from the mimeographed manual. Classes cover two hour periods and run for fifteen weeks for the Fire Course and are followed by a twenty hour course in First Aid, which is taught by one of the ten qualified Department American Red Cross Instructors. At present there are eight classes in session all of which will be finished by the end of the year. They are on a 'staggered schedule' so that now* three classes that have finished the Fire Course are in their first week of First Aid Instruction. That means an Auxiliary Fire Service "army" for Irvington of approximately 500 full time Members (if necessary) supported by a list of citizens who are able to devote a part of their time to the Fire Service.

Upper: Reserve Truck No. 1, Irvington, N. J., Fire Department. Center: Reserve Truck No. 2. Lower: Reserve Truck No. 3.

*July 28, 1941.

Grass Fire Warning

In a release issued to the daily press by the Fire Department of Los Angeles, Cal., some practical suggestions are offered for reducing the damage caused by grass fires.

The release states in part:

Between 3,000 and 4,000 grass and brush fires are extinguished or controlled by the Los Angeles Fire Department each year. In view of the abundant growth of grass produced by the heavy winter and spring rains, the sum total of alarms from this source is likely to reach an all-time high. Such growth covers much of the vacant property within our far flung city boundaries. This natural growth is now for the most part matured, is dying, and the annual fires from this source are again prevalent.

Fire Chief John H. Alderson calls attention to the fact that grass fire alarms have already reached 100 for a single twenty-four-hour period and offers suggestions which will profit the individual, if not substantially reduce the number of fires. Suggestions to owners of property adjacent to such hazards are as follows:

1. Clear a fire break around your property on the exposed sides and keep it clear. Such a fire break should be at least six feet in width, considerably more under special conditions of hazard.

2. See that your own incinerator is equipped with spark arrestors to guarantee that a grass fire does not originate on your premises. Clear a space around incinerator to prevent fire spreading from it.

3. Wet sacks are very satisfactory equipment for grass fire fighting. Keep a few handy. In many homes the hazard is sufficiently grave to justify the maintenance of wet sacks or at least pails of water with sacks handy all through the dry season or as long as the neighboring fire hazard exists. Garden tools such as shovels, rakes and hoes are valuable fire fighting equipment, especially shovels.

4. A good garden hose, connected and ready for instant use, is a good expedient, well proven by experience. Wetting down ahead of a grass fire is good fire fighting technique and a moderate application of water will discourage a lot of fire.

5. Do not attempt the burning of standing vegetation yourself except under a permit issued by the Fire Department. In the ordinary district such a permit and necessary instructions may be secured by calling at the nearest fire station. In the mountainous areas, more stringent regulations prevail.

6. Take no chances with fire and do not overrate your own capacity to handle a fire situation. Much property has been lost that way. The Fire Department is at your service for just such emergency. If alarmed, call the Department and do what you can yourself with the fire until the Department arrives.

"Just another grass fire may easily mean another substantial fire loss. Grass does not catch fire spontaneously and when it burns someone is to blame. Even the unimportant grass fire is a serious matter in one additional respect, in that it takes apparatus away from the station, thereby keeping it out of service for any simultaneous fire which may occur."

NEW YORK STARTS SCHOOLS FOR TRAINING AUXILIARIES

Special Handbook of Instruction Prepared by Asst. Chief J. J. McCarthy

By Jerry Daly

The New York Fire Department on July 29 started a sixty hours' course of training for volunteers for civilian fire defense. Several thousand enrollees in the Emergency Auxiliary Corps reported for instruction at the 341 engine and truck companies throughout the city. The embryo fire fighters who volunteered for fire service have signified their intention to spend two hours on each Tuesday and Thursday night for fifteen weeks in the fire station in their immediate neighborhood.

Poster Used in Enrolling Volunteers in New York

The enrollees represent four distinct types. The first group are civil service employees in city departments, excepting police, fire, transportation, health and sanitation. The second group represented is made up of retired members of the Fire Department who are physically fit. The third group are those young men who recently competed in the civil service examination for entrance into the Fire Department. The fourth group are all other civilians who are not in Selective Military Service Class 1-A. A fifth group, Women's Volunteer Units, has not as yet been pressed into service.

Many of the fire stations were caught short of seating accommodations for the civilian fire fighters on the first night, but experience being the best teacher, the company officers and the firemen soon met the situation for the subsequent sessions. One enterprising Captain in Brooklyn borrowed six dozen chairs from a neighboring undertaker. Other fire companies quickly framed up some light lumber and made benches for the "class room."

The spirit of the movement has "caught on" and the enthusiasm of the Auxiliarymen is really admirable. Each fire station has opened a separate watch desk journal for the auxiliary records exclusively. Auxiliary firemen who complete the course satisfactorily will be given an Auxiliary Corps badge and certificate of membership. For the present there will be no ranks in the Corps. Officers are to be selected later, on recommendation of the regular Company Commander of the fire station. Fire Commissioner Patrick Walsh is much encouraged by the progress made thus far.

Each enrollee filed an application to serve in the Auxiliary Corps as a volunteer and gave requisite information about himself and his qualifications, together with special or pertinent facts with regard to his qualifications, such as licensed marine pilots, chauffeurs, foreign languages spoken, character of employment during the past six years, names and addresses of three sponsors as to character and kindred pertinent information. The application form contains information as to the hours and the days of the week the enrollee is free to attend drills and instructions, and also the hours and the days of the week the enrollee is available for duty.

The enrollees are divided into five classifications or groups—1—City employees excepting those in the Fire, Police, Water Supply, Transportation, Hospitals, Health and Correction departments; 2 retired (but physically fit) members of the Fire Department; 3—all recent candidates for the position of Firemen who took the civil service examination; 4—other civilian volunteers, not in the foregoing groups and who are not in Class 1-A of the selective military service, and, 5—women's volunteer units.

To start the organization of this vast army of volunteer defenders, a 32-page manual was written by Assistant Fire Chief John J. McCarthy, with the approval of Fire Commissioner Patrick Walsh. It is the official authority for the instruction of the members of the corps. Every officer of the Fire Department from Lieutenant to Chief has been supplied with a copy, and if he loses it, he will pay $2 penalty, since the book has been adopted and is included in the official rules and regulations of the department.

The manual is the first of its kind that has come to the notice of this reporter in the present emergency and it is very much in demand. The manual is not for the men in training but for those who are doing the teaching.

Chief McCarthy did a splendid job of clear and understandable writing, devoid of pedantic or trick phraseology. The manual is a friedly credo which contains suggestions to all officers of the department to appeal to the patriotism and the civic-mindedness of those who have volunteered for service in the corps. For instance, the foreword in the manual, subscribed to by Commissioner Walsh and written by Chief McCarthy, says in part:

(*Continued on page* 425)

New York's Auxiliary Firemen Receive a Lesson in Fire Extinguishers

Firemen of Engine Company 324, Queens, New York City, demonstrate the use of knapsack pumps to prospective defense firemen during the first drill of the new emergency Fire Auxiliary Corps, a unit of the civil defense organization. About 60,000 have already enrolled in the unit.

U. S. BUREAU OF MINES MAKES DEFENSE RECOMMENDATIONS

Recent Bulletin Sets Forth Steps to be Taken in Strengthening Defense Against Arson and Sabotage

FOR the protection of arsenals and factories producing defense materials, the nation's firemen, policemen, plant guards and industrial workers should be informed immediately of the known ways and means of coping with incendiary and explosive bombs and other inflammatory devices which are the favorite weapons of saboteurs, it was stated recently by Dr. R. R. Sayers, Director of the Bureau of Mines, United States Department of the Interior.

"Defense against fire," said Director Sayers, "has become part of our national security."

In a personal report to Secretary of the Interior Harold L. Ickes, Doctor Sayers pointed out that the Bureau has been studying the explosibility and inflammability of a wide range of materials used in the construction of incendiary bombs.

Much data already have been gathered by Bureau engineers and chemists through their long experience in the study of metal dusts in plants producing and processing aluminum, zinc, magnesium and other minerals. The Bureau also is keeping itself informed on measures used abroad to control and extinguish fires started by incendiary devices.

The Bureau of Mines, Director Sayers made clear, is concerning itself not with policing or protective measures but solely with the technical and scientific aspects of the problem.

America's experience during the World War, declared Doctor Sayers, proves that we have many vulnerable targets for those intent on sabotage. The objectives of a potential enemy would include factories producing ordnance, chemicals, explosives, armor plate and other essential war materials; freight depots, dock buildings, power plants, dams, and bridges along transportation lines.

Outrages Perpetrated in Last World War

Prior to this country's entry in the World War approximately 100 outrages were perpetrated by saboteurs in munitions plants, technical factories and warehouses; and explosions and fires occurred on a large number of ships hauling war materials. Considerable ingenuity was displayed in the design and making of incendiary bombs then, but it is likely that the modern saboteur will be even more effectively armed.

British experience with aerial incendiary bombs offers many clues to the construction of modern fire-setting devices and to the means which may be employed in coping with them. Certain protective measures are at once apparent, and include: a need for increasing the amount of fire-fighting apparatus in the hands of many fire departments; an expansion of training in fire fighting techniques; the organization and training of private fire brigades, either on a volunteer or pay basis; the proper spacing of new industrial buildings; the increased use of fire-alarm systems and automatic sprinkler systems; and a general program of education as to the character of incendiary devices.

Explosives-testing engineers of the Bureau of Mines state that the chief difficulty in attempting to extinguish incendiary bombs is that some of the common fire extinguishing methods may spread the fire rather than put it out.

It is important, the Bureau of Mines declares, that the information relating to the nature of incendiary devices, the suitability of various extinguishing agents and fire-fighting techniques be made available to our Federal and local protective agencies and through them to the general public.

New York Starts Schools

(*Continued from page* 424)

"With the serious and responsible task of training these auxiliaries to form a strong and skilled supplement of the regular fire fighting force, it is necessary to express many 'shalls' and 'shall nots' but these should not be interpreted as mere orders or restrictions, but as requirements for uniform discipline in the attainment of our aims."

The manual contains 24 rules and regulations, the first of which is a schedule of classes for instruction which commenced on July 29. These classes are being held every Tuesday and Thursday evening in all stations at 4:00 and at 8:00 P. M. for all enrollees. The volunteers select either the afternoon or the evening sessions of two hours' duration each for 30 lessons over a period of fifteen weeks Included in the manual are rules and requirements covering the subjects of company drills, cooperation of officers of the department, complete training, avoidance of needless risks, records, drills, teaching, ladders, masks, first aid, ranks, telephones, badges, privileges and restrictions, vacations, responses to alarms (auxiliary members are not to respond on apparatus) and general amendments.

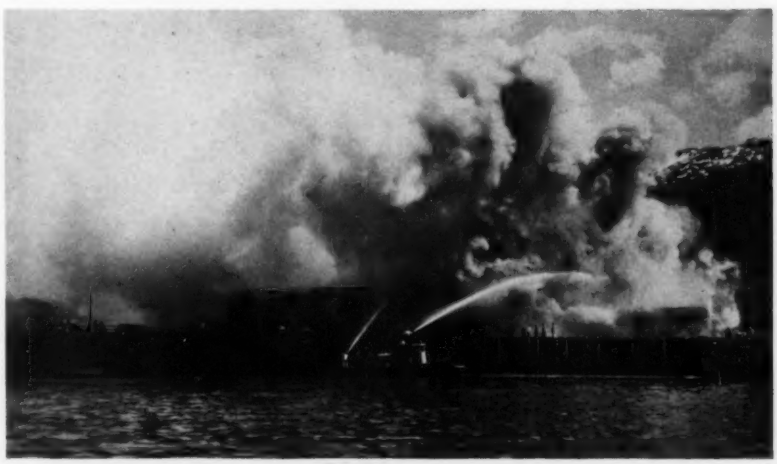
The manual gives 30 lessons in a syllabus of instructions, embracing such subjects as, 1—organization of the department; 2—fires and fire fighting; 3—signals; 4—engine company tools; 5—fire extinguishers; 6—housewatch duty; 7—knots; 8—hydrants; 9—pumper drill; 10—hose; 11—care of hose, nozzles and fittings; 12—stretching hose lines; 13—outdoor operation of hose lines; 14—truck company drills; 15—ladder drill; 16—aerial ladders; 17—response to fires; 18—special apparatus; 19—special apparatus other than N Y F D; 20—ventilation and overhauling; 21—first aid; 22—standpipes and sprinklers; 23—regular water supply; 24—marine fires; 25—relaying water; 26—incendiary bombs; 27—extinguishing bombs and their fires; 28—emergency water supply and its problems; 29—gas masks, and 30—war gases.

Dock Fire in Ketchikan, Alaska

A fire recently raged through a warehouse building and dock in Ketchikan, Alaska. The warehouse had stores in front, and was built of ship lap and tar paper construction, partially over the water.

The building still stands. The $65,000 loss was confined principally to the store stocks.

One fire boat, three pieces of apparatus and 5,000 feet of 2½-inch hose were used to battle the fire and confine it to the one building.



View of the Dock Fire in Ketchikan, Alaska, Showing the Fire Boat in Action.

PHYSICAL TESTS FOR FIREMEN IN NEW YORK ARE STIFFENED

New Candidates for Entrance in the Department Find New Requirements Difficult

THOSE who pass the written examination for firemen in New York will hereafter be subjected to unusually severe medical and physical tests. The requirements of the tests are given below.

Medical

The medical standards for Firemen follow:

1. Minimum Height—5 feet 7 inches (bare feet).

2. Heart—The action of the heart must be uniform, free and steady, its ryhthm regular and the heart free from organic changes or organic murmurs.

3. Respiration—Must be full, easy and regular; the respiratory murmur must be clear and distinct over both lungs, and no disease of the respiratory organ must be present. X-ray examinations must be taken before appointment.

4. Vision Acuity—Candidates must be able to read six or eight letters 20/20 type, each separately, without the use of eye-glasses.

5. Teeth—It is mandatory that the Medical Examiner reject: (a) Any candidate who has less than 16 natural teeth, (b) any candidate who has broken or decayed teeth, and (c) any candidate who has unreplaced missing teeth except where the space is too narrow or too inaccessible to reasonably require replacement.

6. Venereal Disease — Must reject. (Remediable.) Wasserman-blood tests must be taken before appointment.

Medical Examiners must reject for the following defects:

7. Paralysis. 8. The slightest deafness in either ear. 9. Hernia or rupture. 10. Varicose veins. 11. Varicocele. 12. Hydrocele. 13. Hemorrhoids and any defect of the rectum or anus. 14. Chronic catarrh or any obstruction to free breathing. 15. Nervous disorder. 16. The mere history of epilepsy. 17. The mere history of confinement for mental illness in an institution for the insane. 18. Defective color vision. 19. Poor physique.

Examiners must also reject for the following causes unless the condition is of a degree so slight as not to impair fitness for duty:

20. Defective foot. 21. Scoliosis (spinal curvature). X-ray may be required. 22. Hammer toe or overriding toe. 23. Deformed chest. 24. Bowlegs. 25. Stuttering or stammering speech. 26. Goiter. 27. Bunion. 28. Albuminuria. 29. Potential hernia (loose rings). 30. Testicle defects—missing or undescended. 31. Deformities of the mouth or lip. 32. Speech impediments. 33. Defective gait. 34. Skin disease. 35. Deformities of the foot, toe, arm, finger, hand or foot. 36. Orchitis. 37. Strabismus (cross-eye). 38. Inflammation of the eyelids. 39. Overweight. 40. Underweight.

41. Other Defects—The causes of rejection are not limited by the enumeration set forth above. The Medical Examiner may put any question, make any examination of the candidate and reject for any cause or defect that in his opinion would impair health or usefulness.

2. The results of the Medical Examiners' findings will be expressed in one of the following ways:

(a) Passed.

(b) Conditionally Rejected.

(c) Rejected.

3. Those who are "Passed" or "Conditionally Rejected" must compete in the physical examination on the same day. Any candidate, having been passed or conditionally rejected, who does not enter, or having entered does not prosecute the physical examination to its conclusion on the same day, shall be entirely eliminated and carried and counted on the records as "Failed or Withdrawn in Competitive Physical."

4. By the term "Conditionally Rejected" is meant that the candidate has presented some substandard defect, which is ordinarily and usually curable and is deemed to be so by the Medical Examiners of the Commission.

Candidates, with Conditional Rejections, who attain a place on the eligible list for Firemen must request and pass medical re-examinations after publications of the list, but before the expiration of six months after such publication.

5. Those who are "Rejected" by the Medical Examiners will be notifed to appear for one re-examination some time before the last day for medical and physical examinations, to be later announced by the Commission.

If on re-examination they are "Passed" or "Conditionally Rejected," Regulation No. 3 above shall apply.

If they fail to appear or are rejected again on re-examination they are entirely eliminated.

6. Examinations or re-examinations beyond those provided for cannot be entertained.

Physical

7. The physical examination is competitive and therefore under no circumstances are re-examinations ever granted regardless of accidents, injuries, sickness or other misfortune except for Commission regulations or military service.

8. There shall be no prescribed order of taking the various tests and candidates may be required to start at any point. The endurance test, however, shall be the last test for every candidate.

9. A rest of 15 minutes shall be allowed each candidate before being required to take the endurance test. There is no other privilege of resting allowed. Any candidate who enters the endurance test without consuming 15 minutes for rest shall be considered to have waived his rest period.

10. Dumbbells. Not more than four chances by each hand shall be allowed.

11. Abdominals. Not more than four chances allowed.

12. Dummy Lift and Carry. Not more than three chances allowed.

13. Agility. The candidate shall be allowed not more than one chance without foul. He shall fail in the examination if he does not accomplish the test within the time limit or for the commission of three fouls. The common fouls are these:

Short broad jump.

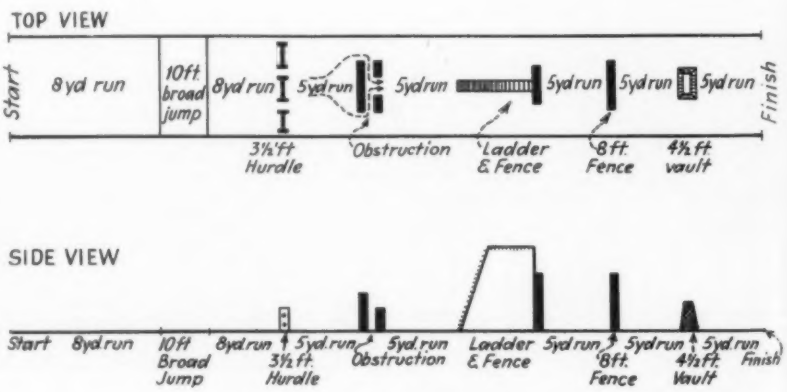
Running out of course.

Knocking down hurdle.

For every foul the candidate shall repeat the test with a penalty of 4 per cent for each foul. This means that a candidate who performs the test perfectly on his second trial shall receive not more than 96 per cent and a candidate who performs his test perfectly on his third trial shall receive not more than 92 per cent.

14. Endurance. One chance allowed. If a candidate fails without rising or leaves the course without returning to continue from the exact place whence he left, all within the time limit, he shall be entirely eliminated.

15. Co-ordination. One practice trial allowed. This under no circumstances



Proposed Agility Test for Firemen

shall be made a part of the record. Two other chances are allowed, with the better of the two being accepted for the rating in Co-ordination.

16. Candidates having once entered into the physical examination must continue to the conclusion thereof at the same session of the examination. Failure to do so, regardless of accident, injury, sickness or any misfortune, must result in complete withdrawal and elimination from the competition.

Competitive Physical Examination

Part I—Co-ordination (Weight 1).

Designed to test hand-eye and foot-eye co-ordination and reaction speed. Candidate sits in cab of automobile and watches a panel board with red and green lights and signs. He performs in the quickest time possible the action indicated by the light and the sign, such as making a left turn or a right turn. He familiarizes himself with the simple operations required by a practice trial as provided for in Paragraph 15.

50 Per Cent Minimum Required.

2	seconds or less =	100 per cent
2.1	seconds or less =	99 per cent
2.2	seconds or less =	98 per cent
2.3	seconds or less =	97 per cent
2.4	seconds or less =	96 per cent
2.5	seconds or less =	95 per cent
2.6	seconds or less =	94 per cent
2.7	seconds or less =	93 per cent
2.8	seconds or less =	92 per cent
2.9	seconds or less =	91 per cent
3.0	seconds or less =	90 per cent
3.1	seconds or less =	89 per cent
3.2	seconds or less =	88 per cent
3.3	seconds or less =	87 per cent
3.4	seconds or less =	86 per cent
3.5	seconds or less =	85 per cent
3.6	seconds or less =	84 per cent
3.7	seconds or less =	83 per cent
3.8	seconds or less =	82 per cent
3.9	seconds or less =	81 per cent
4.0	seconds or less =	80 per cent
4.1	seconds or less =	79 per cent
4.2	seconds or less =	78 per cent
4.3	seconds or less =	77 per cent
4.4	seconds or less =	76 per cent
4.5	seconds or less =	75 per cent
4.6	seconds or less =	74 per cent
4.7	seconds or less =	73 per cent
4.8	seconds or less =	72 per cent
4.9	seconds or less =	71 per cent
5.0	seconds or less =	70 per cent
5.5	seconds or less =	65 per cent
6.0	seconds or less =	60 per cent
7.0	seconds or less =	50 per cent

Part II—Strength (Weight 2).

Test 1—Dummy Lift and Carry:

Lift to shoulder; carry up flight of stairs (8 steps); turn around; carry down and place gently on floor. Throwing or dropping dummy to ground results in 5 per cent penalty.

65 Per Cent Minimum Required.

170	pounds =	100 per cent
155	pounds =	85 per cent
140	pounds =	70 per cent

Test 2—Abdominals:

From a reclining position a candidate must assume a sitting posture carrying up behind his neck a barbell. His feet are held down.

60 Per Cent Minimum Required.

60	pounds =	100 per cent
55	pounds =	94 per cent
50	pounds =	88 per cent
45	pounds =	82 per cent
40	pounds =	76 per cent
35	pounds =	70 per cent
30	pounds =	60 per cent

Test 3—Dumbbells:

By sheer muscular effort (no throw-up or snap-up) raise a full arm's length above head. Each hand separately.

50 Per Cent Minimum Required.

80 pounds one hand; 80 pounds other = 100 per cent.

80/70	=	95 per cent
80/60	=	90 per cent
80/50	=	85 per cent
80/40	=	75 per cent
70/70	=	90 per cent
70/60	=	85 per cent
70/50	=	80 per cent
70/40	=	70 per cent
60/60	=	80 per cent
60/50	=	75 per cent
60/40	=	65 per cent
50/50	=	70 per cent
50/40	=	60 per cent
40/40	=	50 per cent

Part III—Agility (Weight 3).

This test will be rated on total time required to complete all of these events, done consecutively.

From starting mark candidate must run 8 yards; make 10′ broad jump; continue 8 yards to a 3′ 6″ hurdle; 5 yards to a barrier, dodge through barrier; run 5 yards to ladder, mount vertical ladder until he reaches horizontal ladder; travel hand-over-hand under and across horizontal ladder until he can stand on fence; dismount therefrom; run 5 yards to 8′ fence, climb over; run 5 yards; vault over 4′ 6″ vaulting box and then run 5 yards to finish line.

70 Per Cent Minimum Required.

*20	seconds or less =	100 per cent
*35	seconds or less =	70 per cent

*These two times are not final. They merely show the percentages in the last Patrolman examination, which was essentially the same as above. Further experimentation, before the first day of physical examination, will result in accurate and final percentages.

Part IV—Endurance (Weight 4).

A Mile Run—60 Per Cent Minimum Required.

Five minutes or better equals 100 per cent.

5′ 1″	to 5′ 15″ =	95 per cent
5′ 16″	to 5′ 30″ =	90 per cent
5′ 31″	to 5′ 45″ =	85 per cent
5′ 46″	to 6′ =	80 per cent
6′ 1″	to 6′ 15″ =	75 per cent
6′ 16″	to 6′ 30″ =	70 per cent
6′ 31″	to 6′ 45″ =	65 per cent
6′ 46″	to 7′ =	60 per cent

Inventory of New York Apparatus—Governor Lehman has directed New York mayors to take immediate inventory of fire fighting apparatus as a national defense measure. Governor Lehman told the mayors the National Office of Civilian Defense was developing a national fire defense plan and it was necessary to determine the quantity of fire fighting equipment which might be needed in the event of an emergency.

Private Fire Company Operated in Red Bank, Tenn.

There is no municipal fire department in Red Bank, a small town of 3,200 homes near Chattanooga, but fire protection is available at $15 a year from Peck's Fire Department, a private enterprise operated by James Peck, who also acts as Chief of the unit.

The photograph on the left shows the fire department at work fighting a blaze in a Red Bank home. They know their stuff as a result of study, training and fire fighting experience.

The photograph on the right shows James Peck, owner-operator and Chief of the private fire eaters outfit, at the wheel of the fire truck with three of his men.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

RESULTS OF THE PUBLIC KNOWING THE LOCATION OF FIRES

THE age-old problem of the public's fascination of fire is ever present in small communities. This fascination results in the presence of so-called "sidewalk chiefs" at every fire as soon as the alarm or siren is set off. Cars fill the roads as well as the area of the fire itself, greatly hindering the response of the apparatus.

As a result, fire chiefs have to outwit the public. Several plans have worked in various communities, and they are included in the following discussion which is a continuation of the one that was published in a previous issue. The problem in full appears in the box on this page, while in the box on a following page is the problem that will be discussed in the following issue.

HERE IS THE PROBLEM

Should a volunteer fire department give to the public (through cards, posters, etc.) the district code numbers, so that the location of any fire may be determined by the public from the number of siren, whistle or horn blasts sounded?

What are the advantages or disadvantages of such a plan?

If you use such a plan, how do you handle the traffic problem in the area adjacent to the fire?

N. G. Huff, Chief, Boossier City, La.: Back in 1929, 1930 and 1931, we furnished the public with cards giving the locations of the fire alarm boxes and districts, but this caused so much confusion and congested traffic that the practice was discontinued.

As we did not take up the cards, the situation remained the same until we changed the locations of the boxes and districts and added new boxes with code that would be hard for the public to read (boxes as 1-1-2-1). This remedied the situation and we now have practically a free way and no interference.

Our calls are furnished to patrol cars and motorcycles via radio, and they block off the street in many cases before we get there.

John E. Weiland, Chief, New Lexington, Ohio: It is my personal opinion that the public should be informed of the location of a fire, and through the press and posters educated as to the danger of following fire trucks, and requested to refrain from this practice and give their firemen a chance to give the efficient service they expect of them.

People having mercantile establishments in the business district or who are away from home, are desirous of knowing whether their property is involved. Very often the owner of the property involved or adjacent to the fire can render very valuable service by opening up for the firemen and leading them through the establishment to exposures which the firemen would have difficulty finding. We also ask every merchant to keep a card in his window giving the phone number to call in case of an emergency.

The New Lexington Volunteer Fire Department notifies the public of the zone in which the fire is located by tapping a bell at the fire station, but, and here is the solution, not until the apparatus has left the station and has had an opportunity to get to the scene of action. Members of the department living or working some distance from the station, get the location in the same manner and take the nearest route to the fire. The first members to arrive, park their cars far enough back and in such a manner that the public cannot get any nearer the fire, thereby stopping all traffic at this point.

Since adopting this system, we have had very little trouble from the public, and they appreciate the service.

Charles Sweeney, Chief, Antioch, Calif.: For the benefit of the volnunteers we must of necessity use a code signal. The insurance companies use it on their business cards with a list of boxes. We do not care for this, but it enables the volunteers by use of phones to check up quickly on the location of calls.

To handle the traffic situation we have police and fire department police assigned to this particular job. These fire police are men selected for their ability to handle this situation and are trained as specialists in this phase of our work.

W. Ewart Day, Chief, Winslow, Ariz.: I do not think it wise to publish the fire district signals, provided the town or city has an organized fire department. If the firemen must depend on getting some help from the spectators, then the signals for the various districts should be posted so as to have everyone familiar with them.

When an alarm is received, the volunteer department members must of necessity come to the fire from all directions, and if the public had the information as soon as the firemen, there would be too much delay in getting into operation due to traffic conditions.

We have our department members called by phone; also the railroad sounds the box numbers of their alarm system on the shop whistle. The police and usually the sheriff's car answer all calls and handle traffic for us.

Benjamin S. Hanson, Chief, Bound Brook, Conn.: The only advantage to publishing the district code numbers is that the volunteers will know what direction to take to get to the fire without going to the station first.

The big disadvantage is that the general public gets the same information and proceeds to block up all the roads going in the direction of the fire. We are cursed with too much of that trouble already. Every time the trucks go out to a fire, they are followed by a string of cars which block up the roads behind the apparatus and hinder the progress of second call trucks and also block the road of the pumper going from the fire to the hydrant, pond or brook which may be the source of its water supply.

While we have two constables on our roster with power to act, the traffic problem is still unsolved. It is difficult for the officers to get to the fire in time to prevent the accumulated cars from blocking the road behind the truck. Local officers seem to hesitate to make arrests for this offense as conviction is difficult.

H. M. Wolparth, Chief, Aspinwall, Pa.: We have found that citizens with their own cars rush to the fire department headquarters to get the location of the fire, making traffic for the fire trucks very hazardous and also slowing up the response of the apparatus to the fire. We have Gamewell alarm system and siren which does not give code numbers. Consequently everyone rushes to the fire station and follows the apparatus to the fire.

W. W. Deist, Chief, Bonners Ferry, Ida.: I don't believe the district code numbers shoould be given out to the public, as they all try to beat the apparatus to the fire and slow it up.

The city Police handle the traffic for us. They keep the cars out of the block where the fire is located.

W. T. Nelson, Chief, Keewatin, Minn.: We furnish a card to the general pub-

lic showing all box numbers and location of each box. Our siren blows coded numbers on each alarm which if followed by anyone interested gives the location of the alarm.

The advantages of such a plan are that it gives the volunteer members and the general public the location of the fire and saves the telephone at the fire station from being jammed with calls seeking the location of the fire.

The traffic problem in the area adjacent to the fire is handled by the police department who endeavor to be present and direct traffic.

We have a Gamewell alarm box system with boxes in various well-located spots in the town and outlying districts. Our department has one driver on duty at all times which makes it possible for him to be ahead of most of the traffic going to the fire.

P. H. Snyder, Chief, Blairsville, Pa.: I do not believe the public should know the location of any fire. In this day and age the automobile is the greatest menace to the fire department in answering alarms.

During the day we use a siren for all alarms and the public is more trouble to combat than the fire. But at night we use an alarm in every fireman's home, and the only persons who know of a fire are the people in the immediate vicinity of the fire. Therefore I have the use of the entire department to fight the fire, instead of one half fighting the fire and the other half fighting the public.

Emory E. Stevens, Chief, Shelbyville, Dela.: I think the public should have a way of knowing where a fire is by the number of siren whistles. We find it better to use this method than just using one blow. If the call is an out-of-town fire we don't have the traffic to contend with that we do in town. There are a lot of sightseers and traffic jammers that won't go to country fires. By their not going our traffic problem is solved somewhat.

Both in town and out we have members in our company who see to it that the road is clear for us. We have from two to four men to act as traffic police at the time of a fire.

We use one blow for a meeting; two blows for a drill; three blows for an out-of-town call and continuous blowing for a fire in town. This enables the public to know where we are going, and what our fire calls are.

A. L. Eischeid, Chief, Cresco, Ia.: I do not believe that a volunteer fire department should give the location of a fire to the public as it congests traffic to such an extent that it makes it almost impossible to get the trucks to the location desired and to string hose.

We have a silent alarm here at Cresco, and we get the apparatus to the fire before the public is aware of what is going on.

Kirby S. MacKennon, Chief, Amboy, Ill.: I do not feel the public should know the location of fire by the sound of siren, whistle or blast, because the ones really needed are the firemen and not the general public who usually drive very fast to get there ahead of the other fellow. This only helps create a major traffic problem for the local department when nearing the fire.

It also helps to create larger crowds at fires as many people do not become as excited under a general alarm system as they do under the code system, especially if they find that the fire is in their own neighborhood.

Robert Rea, Chief, West Branch, Mich.: I do not believe the public should be given the location of a fire because they start for the fire the minute they know where it is and cause serious traffic hazards and complicate the fighting of the fire.

While I believe that public interest in the fire department must be maintained, the longer they are in getting to the fire, the better chance the fire department has to get started.

F. S. Otis, Chief, Earlville, Ia.: While our alarm system does not include a siren code system, we try to discourage the public from following the trucks, coming to the fire, or in any way hindering the work of the department. Just recently we purposely sounded a false alarm with the siren, ran the truck to the edge of town as if we were going to a fire and then ran through a practice session. Anyone calling the telephone operator and asking where the fire was had their call transferred to the fire station where a member of the department requested them politely not to call the operator for this purpose as it slowed up the calls from department members who wished to go directly to the fire. We plan to repeat this later in the fall. We also run notices in the paper once in a while, asking the public to refrain from following the truck, calling the operator for the location of the fire, or getting in the way of the firemen at a fire.

Harry G. Lundberg, Chief, Ashland, Wis.: I do not believe that any information in regard to the location of a fire should be given to the public at the time the alarm is received. We used to have a siren that would blow the number of the box closest to the fire, but we had to discontinue its use due to the stream of cars that would rush to the scene of the fire and would hinder the fire department in responding.

About eight years ago we had a fire in a foundry on the outskirts of the city. It was a Sunday afternoon and there were more cars than usual on the roads. It seemed as if they all rushed to the fire. One of our pumpers made it in good time in getting to the fire, but when the second pumper tried to get through, it could not as the cars were jammed in five abreast. The men had to leave the truck and run to the fire. Lucky the fire was not very large. From then on we discontinued the blowing of the siren and have had no trouble or delay in getting to the fire.

A. O. Eastman, Chief, Jennings, La.: We do not have any districts or wards in our city. We use a telephone alarm that starts the siren when central rings the telephone. We have a printed card at every telephone in the city, and the person calling gives his house number and the name of his street. We have two police officers who go to the location of fire and handle the traffic situation with the help of some of my men. If any offenders get caught the city judge fines them. We don't have too much trouble.

I don't believe it is a good idea to give district code numbers as it causes a crowd to gather and to be in the way of the apparatus. Our siren hasn't got a coding outfit as it is pretty old. We have three trucks and the last one has trouble getting to the fire if the men are a little late in getting to the station.

We write the location of the fire on a blackboard so that the men coming in after the first truck has left will know where to go.

H. E. Anderson, Chief, Breckenridge, Minn.: I do not believe the public should be informed of the location of fires by acquainting them with the code of fire alarms. I believe most departments have enough with the traffic in and around the scene of the fire without inviting the public to the fire.

MIGHT AS WELL TURN THAT BIG TEA-KETTLE AROUND AND GO BACK TO THE PINOCHLE GAME, BOYS!
BY THE TIME THEY GET THROUGH THAT JAM - THERE'LL BE NOTHING LEFT OF THE PERKIN'S PIG FARM BUT SOME RIGHT CRISP BACON.
THERE GOES LEM AND HIS TRACTOR, MEBBE HE COULD RUN A LITTLE INTERFERENCE FOR 'EM.
GIVING THE VOLUNTEER F. D. A LOT OF HELP IN PUTTING OUT THE FIRE
THANKS TO MRS. HUGH MS WHIPTER, LAWNS CALIF.

Our firemen have colored lights on the switchboard at the telephone exchange and can get the necessary information as to the location of the fire from the operator.

We do not want any more cars at the fire than we now have. We carry police tags on our trucks and do not hesitate to tag any motorist who makes a nuisance of himself by crowding in too close to the actual fire or apparatus.

Harold G. Kraus, Chief, Fort Bragg, Calif.: I believe the district code numbers should only be given upon request as has been done here. Our system is primarily for the information of firemen only.

We have four districts in Fort Bragg and the code 1-2-3-4 is coded on the siren in which district the fire is located. This enables the firemen wherever they may be, working or home, to head for the particular district and pick up the location of the fire. This saves time when not having to check in at the fire house.

A city ordinance forbids anyone other than firemen, or a person driving a fireman, to move for five minutes after the siren has finished blowing. Unfortunately this is not adhered to and is hard to enforce. We have to continually warn the people and every so often there is a ticket campaign.

M. L. Bosier, Chief, Bangor, Mich.: We have had published in our local paper the number of blasts for certain sections of the village so citizens may know the approximate location of the fire.

We can see no advantage to the plan and for a time discontinued the practice. However the Council gave us instructions to sound the siren for fires in the village. We do not use it for country fires.

We have very little trouble with the traffic problem as one of the department members handles the sounding of the siren and his instructions are to "hold everything" until the equipment has had time to reach the fire.

We are entirely a volunteer department and have no one on duty at the station.

Fred H. Alchin, Chief, Ovid, Mich.: We find the traffic question hard to cope with at times, but the help derived from the people on side lines at fires more than counteracts the bother on the street.

Efforts have been made at times to stop this traffic, but it only gives cause for more fault finding and grumbling which is bad for any department, so I say let them come to the fire and if they get fun or thrill out of the excitement they are easier to get along with and to satisfy.

Our siren only determines the ward in which the fire is located. We have four wards. Two blasts are for country calls; three for first ward; four for second ward, etc.

T. E. Jones, Chief, Bridgeport, Ala.: I do not think it wise to give the public the district code numbers. The general public is never much assistance at a fire. As a general rule, they handicap the firemen. We have one fireman with police powers who is assisted by the regular police to see that the rules governing the public are observed. During the past nine years as Chief, I have had very little trouble controlling conditions at scene of fires.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Are any buildings in your city equipped with floor scuppers (small floor openings with covers) to aid the fire department in operating on a basement fire should such occur?

If so, has the department ever used them, and with what results?

What benefits do you believe might result from the general use of these devices, particularly where concrete flooring was encountered?

K. C. Jones, Chief, Blythe, Calif.: In most small communities the fire departments have considerable trouble from sightseers and "poolroom chiefs." This would only serve to aggravate a bad condition. Traffic to a fire is always bad particularly so on dead-end streets. We have several firemen deputized as special police, and periodically conduct a drive with traffic citations to educate the public on following the rigs and parking their cars in such a manner as to hinder the normal operation of the department.

Eugene Spender, Asst. Chief, Company No. 2, Wyckoff, N. J.: From the observation I've made in my community, which is a small one, I firmly believe the fire department should not give to the public any information concerning the location of fires whether it be by cards, posters, etc. By doing so, the public is afforded the opportunity of arriving at the scene of a call before the equipment as certain members must go to headquarters for the apparatus.

To me, the advantages if any, are few and minor. The major disadvantages being that by the time the firemen arrive with the equipment a good many spectators are present making the area very congested. This prohibits the firemen in their private cars, as well as additional equipment, from getting close to the fire where they are needed. Such conditions, of course, hamper considerably the work that must be done by the responding company. Invariably the private citizen attempts to assist the department, and being unfamiliar with department practices, impedes the men from efficiently carrying out their duties.

When it becomes necessary for an engine to leave the fire for any reason, the commenting public, as well as their cars which are parked close by, offer the department another handicap sometimes not easy to immediately overcome.

The police officer upon arriving endeavors to handle such conditions. If any of the part-time police officers are present, they help too, and if necessary, the fire department renders some assistance.

E. R. Caldwell, Chief, Warrior, Ala.: In our little city we use a really large siren for a fire signal; also a phone at the city hall and a phone at the fire station. We have tried a code signal but did not get results. At present when an alarm comes in, the truck leaves the station before the signal goes off. We have four members on duty from 6 a.m. to 10:30 p.m. daily.

The city police are present at all fires and handle traffic. We have only lost two fires in twenty-six calls the past year, and I feel proud of that record.

The reason the truck leaves before the signal goes off is that we handle the alarm from the fire station. That gives us a start on the signal.

R. L. Bethea, Jr., Chief, Louisville, Ga.: At one time we used code numbers from our siren, but found that this was a decided disadvantage to our particular department.

Our fire department personnel consists of three paid men and seventeen volunteers. We have two pumpers and when a code alarm was sounded, the men on duty responded on one truck and the first volunteer arriving at the fire station drove the other truck to the fire.

We found that on several occasions when we used coded alarms that all the volunteers drove directly to the fire in their autos, thinking that someone else would bring the second truck. On one occasion we were seriously handicapped at a fire and lost precious minutes sending a fireman back for the second truck.

We do not use code now and nearly every volunteer must drive by the fire station to obtain the location of the fire, assuring a driver and crew for the second truck.

Our town is small and everybody goes to the fires, which, of course, creates a traffic hazard.

When we used coded alarms we found that the public knew the locations just as well as the firemen, and on some occasions the apparatus made slow progress behind, or in and out of a stream of traffic, and we had to be cautious at street intersections. Several times the streets adjacent to the fire location were cluttered up with automobiles, seriously handicapping spotting the apparatus and placing hose lines.

Now as we do not use code, the public must follow the apparatus to ascertain the location, which they do at a safe distance, parking their cars well out of the fire zone.

For our small town we found that with our particular set-up, code alarms created congestion and confusion, which has been entirely eliminated since the code was discontinued.

W. A. Skinner, Chief, Genoa, Ill.: I do not believe a volunteer fire department should give code numbers so that the location of any fire may be determined.

We tried that method in 1936 and found it to be a disadvantage. We tried the following method: one siren blast if fire was located in first ward: two if in second ward; three if in third war; and one long blast for rural fires. But often the telephone operator who blows the siren would not get the ward in which the fire was located and thus would have to guess at the location, which made it very uncertain. There was also confusion between rural and first ward alarms.

Then too, traffic would naturally start for the ward in which the fire was located and this would impede the progress of the firemen responding in their cars.

Since 1936, we use one siren blast for rural fires and two for city fires. This method has been found very satisfactory.

We also urge the public not to call the telephone operator for three minutes after the siren sounds, allowing this time for firemen to call in should they wish information regarding the location of the fire.

George Arens, Chief, Arbuckle, Calif.: The district code numbers are occasionally listed in the newspaper. This helps on streets near the fire house, but we have trouble near the fire.

The Traffic Department occasionally takes charge of traffic in the fire zone, and gives out tickets to bad offenders. This helps for a period of time, but has to be repeated.

Fred Callahan, Chief, Grafton, Ill.: Our volunteer department does not use a code for location of fires in the city. The drivers of the trucks are notified by telephone.

We have a dynamite factory in our city, but because of the hazardous industry they have a plant fire brigade. One solid blast of the siren notifies the employees of a fire at the plant, also calling the firemen to wait at the fire house to stand by. If the firemen are needed, a second call is sent.

Kenneth Purdy, Chief, Columbiaville, Mich.: I do not believe that the public should be informed of the location of the fires by any code signals with the siren.

In the first place you would have the roads and streets full of cars ahead of the apparatus, more so on rural runs where the dust hazard means a lot to the men riding an open rig.

The fewer "curbstone" fire chiefs you have around, the more efficient the men work.

We do not use any code system on our alarms.

Arthur F. Gray, Chief, Celina, Ohio.: We do not have a volunteer fire department, but the problem applies in some ways to us as well as to a volunteer company.

We use the ward whistle which is intended only to tell business men the ward in which the fire is located. The bad part of this practice is that everybody runs to that ward, and there is quite a bit of traffic to contend with. This is taken care of by the police.

W. E. Bull, Chief, Bartlett, Ill.: I do not believe that the public should know the code numbers as there are always too many fire fans present at the fire. When we have a call from the country, we blow just twice so that our men know it is in the rural district, and as we go along we sound the siren so that the farmers can follow up with more water in milk cans as we are located in the milk belt and are very seldom short of water. We carry 450 gallons of water at all times.

Our organization serves members only. Our rates for joining are $20.00 for the average farm, $10.00 for a small place. That sum is for the life of the pumper.

We had one fire within a mile and a half of town last fall in a large barn. I believe that there were 10,000 people on hand. Our water trucks could not get through at first, but finally the road was opened and kept so. It occurred on a Sunday night and you could see the flames for miles around. Since then, I have made arrangements with the sheriff to send county police to a fire to keep the roads open.

William F. Schwenk, Chief, Yankton, S. D.: My opinion is that under no condition should the volunteer department make available to the outside public the location of any fire, nor should they be granted any special placards or posters, making it possible for any individual group outside of firemen to attend a fire. If this permission were granted the same would surely be abused, thereby causing an unnecessary delay in apparatus and firemen reaching the fire through congestion.

Previous to 1938, at which time our department was reorganized, we had a condition here that somewhat proves the above point. Whenever the fire siren sounded, anyone could step to the telephone stating that they were a firemen and the operator would immediately give the location of the fire, which you can see caused one mad rush of our citizens to the fire. They sometimes arrived before the firemen and apparatus and hindered the laying in of hose lines.

After my appointment as Chief in 1938, the Commissioner of Fire and myself went before the manager of our local telephone company to see whether this condition could not be corrected. After some discussion we hit upon the code idea taking a letter from the alphabet. Each fireman is given this code letter together with the telephone operator so now all our firemen have to do is step to the phone when the siren sounds, give the code number, and the operator will give the location of the fire. Anyone not able to give the code letter will not receive this information from the operator, thereby eliminating to a great extent the habitual fire chaser. Whenever we think there are too many calls being received by the operator, we change the code letter. We have found this set-up to work very satisfactory and trust this information will be of benefit to other volunteer departments who are now experiencing the same condition we had.

Henry F. Drake, Chief, Stanford Fire Department, Clinton Corners, N. Y.: If the fire department does not notify the public, some enterprising advertiser will, so it might as well be done. Incidentally, the public wants to know where the fires are and the location cannot be kept from them too long, especially in small communities.

If traffic does not interfere, it is a good thing for the firemen to be "on the spot" at fires for alibi will not work in front of a crowd. The men are thus forced to do the best they can.

We try to keep fires from being spectacular. No one is interested in a fire that cannot be seen.

L. W. Cook, Chief, Delray Beach, Fla.: We at one time published our signal system and urged the public to acquaint themselves so that they would know which way to expect the fire apparatus to move and could by such knowledge help to clear the way.

This proved to be helpful and well complied with by property owners and older people, but greatly increased the traffic hazard caused by young people of school age trying to beat the apparatus to the fire, which in most cases they did.

As a result we changed the entire signal system and advertised that if anyone interested would write or call at the fire department office, all information would gladly be given them. This system gives us the opportunity of explaining the hazards involved and has made for us many cooperative friends.

R. F. Emmett, Chief, Arapahoe, Neb.: I do not believe the public should be notified of the district code numbers used by the fire department. I think that that method has disadvantages. In our department of twenty volunteers, the local telephone operator calls the members in the event of fire. She has been instructed not to use the fire siren until ample time has been given the department to get on their way. The control of the city fire siren is at the local central telephone office.

In this way the department can be on its way and avoid the hazards of traffic which I presume happens in all small towns when the fire alarm is given.

* * *

Answer to Previous Question

The following reply is in answer to a previous question on the use of fire departments to quell strike riots:

Harry G. Lundberg, Chief, Ashland, Wis.: We have never participated in strike riots in industrial plants. I do not believe that the fire department should be used for that purpose. I think the Chief of Police in any city where large industrial plants are located should have men sworn in for that purpose. These men could then be called for the slightest disturbance. I do not believe in taking a twelve or fourteen thousand dollar pumper into a scene of that kind, to say nothing of the personnel of the fire department who would not be equipped to handle a fighting mob of strikers. It would be the same as sending a soldier into the line of battle without a gun.

Detroit Faces Shortage of Firemen

Detroit, Mich. is faced with an actual shortage of firemen, the City Council has been warned. Demand for jobs in the department has fallen off so sharply that an insufficient number have registered for the annual examination, and it has been postponed from July 30 to August 13.

In previous years around 1,000 applicants have appeared promptly the first day applications were received, but only 150 men have applied so far this year. There is an immediate need for between fifty and seventy-five firemen.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Results When Taking Suction

To the Editor:

On our fire truck we have a small booster pump (rotary) and carry 300 gallons of water with us. We are wondering, if we had 2½-inch hard suction to attach to the rotary pump if we could lift water 28 feet and at the same time give sufficient pressure on a 1½-inch hose line.

Also on the truck is a single-stage centrifugal 500 gallon pump. What would happen if we would place a 4-inch suction hose (10 feet) on the pump and attach to it a 2½-inch hard suction hose? Or what would happen if this operation were reversed?

W. B. T.

Answer: I question whether a small booster pump could raise water twenty-eight feet by suction. Fire engines which can lift water twenty-five feet are considered to be in pretty good condition. If, however, the booster pump is particularly tight, it might be able to lift the water the twenty-eight feet. If so, it should also deliver the water through a line of 1½-inch hose a reasonable distance and give satisfactory nozzle pressure.

With regard to the centrifugal pump, the two sections of suction placed together (one of which we assume is soft suction) would work satisfactorily if they were attached to a hydrant. If the engine were taking water from suction, that is, there was a vacuum on the intake side of the pumper, then the soft suction hose would collapse, and the pump would not function satisfactorily.

If both the sections of hose are hard suction, they will work equally well with the two sections transposed.

Small Line Calculations

To the Editor:

How would you find the factor for a ¼-inch tip on a ¾-inch hard rubber booster line on booster pump?

Using a ¼-inch tip on 200 feet of ¾-inch booster hose and 80 pounds on the gauge, what would be the nozzle pressure and discharge per minute?

E. F.

Answer: The factor for a ¼-inch tip on a ¾-inch hard rubber booster line is .235. Factors for very small lines and small nozzles are not calculated in the usual manner for finding the value of "K." It is chiefly a matter of taking experimental figures and then finding out what value of "K" must be used to secure calculated values equal to the experimental values.

Using a ¼-inch tip on 200 feet of ¾-inch booster line with 80 pounds pressure on the engine, the nozzle pressure is found as follows:

$$\begin{aligned} \text{N. P.} &= \text{E. P.} \div (1 + \text{KL}) \\ &= 80 \div (1 + .235 \times 4) \\ &= 80 \div 1.94 \\ &= 41.2 \text{ pounds approximately.} \end{aligned}$$

$$\begin{aligned} \text{Discharge} &= 29.7 \times \text{d} \times \text{d} \times \sqrt{\text{P}} \\ &= 29.7 \times ¼ \times ¼ \times \sqrt{41.2} \\ &= 29.7 \times ¼ \times ¼ \times 6.4 \\ &= 11.88 \text{ gallons per minute.} \end{aligned}$$

Hydrant Discharge

To the Editor:

How many gallons of water will be discharged from a hydrant with a 2½-inch outlet? Pressures at the hydrant are 80, 85, 90, 95, 100 and 105 pounds.

How many effective lines with 1-inch tips can be laid from same with a 750 gallon rotary pump using 250 feet of 2½-inch hose?

R. E. L.

Answer: The discharge for a 2½-inch outlet on a hydrant, where the pressure is known, is found as follows:

Discharge in gallons per minute is equal to $167 \times \sqrt{\text{P}}$, where P is the pressure at the hydrant in pounds per square inch.

For example, if the hydrant pressure is 100 pounds, then the discharge is equal to $167 \times \sqrt{100}$, or 1,670 gallons per minute.

This is the discharge from each 2½-inch outlet. If two such outlets are in operation, the discharge will be twice as much.

Of course, it is assumed that the pressure at the hydrant's outlet remains constant even when the streams are flowing full, though such is rarely the case.

A 1-inch nozzle, at an effective pressure, discharges around 200 gallons per minute. Hence you can find out how many such streams can be supplied by dividing the discharge from the outlet by 200.

If a 750-gallon pumper is being used, and if the engine pressure is around 120 pounds per square inch, then each such pumper can give three streams employing a 1-inch nozzle.

Pumping Water Over Hill

To the Editor:

A pumper is connected to a hydrant that is situated 800 feet from the nozzle. It is necessary to run the hose line up a hill 50 feet high and then down the other side to the same level that the hydrant is. Using 2½-inch hose equipped with a 1⅛ inch nozzle, what pump pressure is necessary to give a nozzle pressure of 35 pounds?

As the water is pumped up to the top of the hill and then flows down, would the hill have to be a factor in determining the pump pressure? I contend that it would until the flow was under way, and then the drop would equalize the pressure necessary to raise the water the 50 feet.

J. R. D

Answer: Where water is pumped up over a hill and the nozzle is at the same elevation as the engine, both the rise and fall can be neglected. The problem resolves itself down to one in which an eight hundred foot line of 2½-inch hose supplies a 1⅛-inch nozzle at 35 pounds nozzle pressure, the engine pressure to be calculated.

$$\begin{aligned} \text{E. P.} &= \text{N. P.} \times (1.1 + \text{KL}) \\ &= 35 \times (1.1 + .167 \times 16) \\ &= 35 \times 3.772 \\ &= 132 \text{ pounds.} \end{aligned}$$

When starting water through a line laid up over a hill, a greater load is on the engine while water is being forced to the crest of the hill; after that, the load decreases until water finally reaches the nozzle, at which time the rise and fall may be neglected.

Capacity of Barrel and Bucket

To the Editor:

How many gallons of water are there in a fire barrel?

How many gallons of water are there in a fire bucket?

L. T. W.

Answer: Most of the fire buckets advertised are of twelve quart capacity. I presume that this is the standard size.

Barrels for fire protection in industrial plants range from 25 to 50 gallons. However, the standard size barrel mentioned in "Kent's Mechanical Engineers Pocket Book" is 31½ gallons.

Of these sizes, you'll have to make your choice.

Correction

In the problem "Complex Pressure Pump" appearing in the July issue of Fire Engineering under Questions and Answers, the discharge of a 1⅛-inch nozzle at 40.5 pounds was given at 294 gallons per minute. This was incorrect, as the discharge from 1⅛-inch nozzle at 40.5 pounds is 240 gallons per minute. Thanks to Frank E. Logan, Field Instructor of the Indiana Fire Schools, South Bend, Ind., for pointing out this error.

Branched Line Calculations

To the Editor:

100 feet of 2½-inch hose is connected to a 2½-inch outlet of a hydrant. Hydrant pressure is 70 pounds. At the end of the 2½-inch hose is a siamese from which are two 1½-inch lines each 100 feet long equipped with a ½-inch shut-off nozzle. How much water will pass through both of these nozzles in one hour? M. S.

Answer: The method of solving the problem you give is as follows:

First change the two parallel lines of 1½-inch hose to 2½-inch and then combine them into a single line. Having the combined lengths of the two lines, add it to the 100 foot line between the engine and the wye connection. This gives you the layout in a single line of hose, 2½-inches in diameter. Then combine the two ½-inch nozzles.

Solve for nozzle pressure and discharge.

To change parallel 1½-inch lines to a single line of 2½-inch hose, first change each to 2½-inch hose by dividing by the factor .074.

100 ÷ .074 = 1370 feet of 2½-inch hose.

As each of the branch lines will be the same length, we have two parallel lines of 2½-inch hose each 1370 feet in length.

Combine these into a single line of 2½-inch hose by dividing by the factor 3.6.

1370 ÷ 3.6 = 380 feet of 2½-inch hose.

Then add the 100 feet of hose from the engine to the wye connection and we have a total length of line of 100 ÷ 380 = 480 feet of 2½-inch hose.

Combine the two nozzles:

½ × ½ = .5 × .5 = .25
½ × ½ = .5 × .5 = .25
.25 + .25 = .50

The square root of .50 = .707 which is the actual diameter of a single nozzle equal to the area of the two ½-inch nozzles.

The nearest standard size nozzle to a .707-inch diameter is .75, or ¾-inch.

We therefore assume a ¾-inch nozzle is used on the combined line.

Nozzle Pressure = Engine Pressure ÷ (1. + KL)

K for ¾ inch nozzle on 2½-inch hose is .042

L = 480 ÷ 50 = 9.6

Then N. P. = 70 ÷ (1 + .042 × 9.6)
= 70 ÷ 1.4032
= 50 pounds approximately

Discharge in gallons per minute 29.7 × d × d × √ P, where d is the nozzle diameter in inches, and P, the pressure in pounds per square inch.

Discharge = 29.7 × .75 × .75 × $\sqrt{50}$
= 29.7 × .75 × .75 × 7.07
= 118 gallons per minute

The discharge per hour would be 60 times the discharge per minute, or 60 × 118, or 7,080 gallons per hour.

Parallel Lines

To the Editor:

A 1,000 gallon pumper with two 500 foot lines of 2½-inch hose equipped with 1¼-inch nozzles is connected to a hydrant. Engine pressure is 120 pounds. What are the nozzle pressures?

T. J. O.

Answer: In solving a problem where two separate identical layouts are stretched from a pumper, each one is solved separately.

Of course, each line will have the same nozzle pressure, for the engine pressures, lengths of lines, hose diameters and nozzle diameters are the same.

Where a pumper is pumping through two parallel lines of 2½-inch hose each 500 feet long and each equipped with 1¼-inch nozzle, the nozzle pressure on one of them will be found as follows:

N. P. = E. P. ÷ (1.1 + KL)
= 120 ÷ (1.1 + .248 × 10)
= 120 ÷ 3.58
= 33.51 pounds

This will be the pressure at each of the nozzles.

Solving Small Line Problems

To the Editor:

How is the friction loss calculated in 1½-inch double jacket fire using a ½-inch nozzle. Can you give me some simple rule so that those using it will know how much engine pressure to build up when operating a pump where 1½-inch lines are used?

S. E. S.

Answer: The formulas for finding engine pressure and nozzle pressure on 1½-inch hose are as follows:

E. P. = N. P. × (1 + KL)
N. P. = E. P. ÷ (1 + KL)

These formulas are for rubber lined hose, either single or double jacket.

In the above formulas, "K" for 1½-inch hose and ½-inch nozzle is equal to .104.

For a ⅜-inch nozzle, .036;
For a ⅝-inch nozzle, .234.
"L" is the length of hose measured in 50-foot sections (i.e., the number of fifty-foot sections in the line).

With the above formulas, nozzle pressure and engine pressure can be found for 1½-inch lines which have ½-inch, ⅜ or ⅝-inch tips.

(*Continued on page* 469)

One for Our Readers

A reader, Mr. John C. Lee of Elmira, N. Y., has written for information on a book entitled "Buffs." He has been endeavoring to find the name of the author and the publishers of the book. Any data on this book will be appreciated by Mr. Lee and by the Editor.

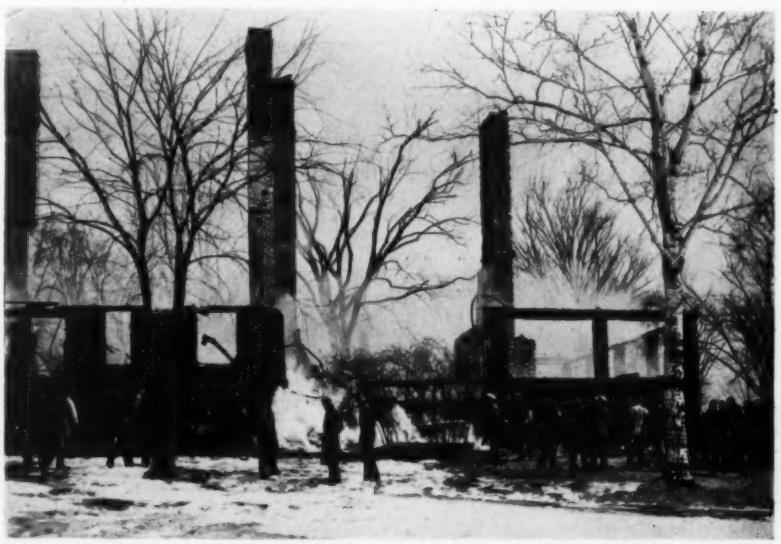
Private School Razed by Fire

The twenty-room Duncan School for Boys at New Milford, Conn., once a show place residence in that town, was destroyed by fire early this summer with loss estimated at $75,000. Sparks from the spectacular blaze started roof fires at three other homes in the vicinity.

Ten children, students at the school, fled to safety as the fire broke out in the northwest corner of the attic from an unknown reason. The building, known throughout this section of the state as "Hickory Hearth", was engulfed in flames when members of the New Milford Fire Department arrived in response to an alarm received at 10:15 a.m.

Two firemen were injured fighting the fire. The school was operated by Mrs. Frank Tidwell. The building was erected in 1896 and was for many years a part of the Ingleside School for Girls. Turning their attention to nearby building menaced by flying sparks, the firemen extinguished two roof fires. Half a mile from the school building, a home on Poplar Street caught fire from sparks. Firemen from the nearby town of Washington quelled that blaze.

THOMAS F. MAGNER.



Remains of What Was Once a School for Boys at New Milford, Conn.

WITH OUR READERS

Safeguarding Hand Lines

To the Editor:

The purpose of the test I am about to describe, was to see if we could safeguard men working on hand lines and at the same time get a good turret stream. I believe it is the best layout that can be had.

All hose used in the test was 2½-inch hose. No. 1 and No. 2 pumps had two hand lines off each these lines being 200 feet long. The lines from each pump had 1⅛-inch and 1¼-inch tips. Two lines from each of the two pumps were connected up to a 1,000-gallon booster pump having a turret.

Such a setup allows the man in charge of the fire to place a heavy stream into operation and take lines off of a nearby pump that has one or more outlets not in use, instead of cutting handlines or placing another pumper into operation.

CHIEF ED WELCH,
Columbus, Ohio.

Results of Tests in Supplying Turret Nozzle Through 1000-Gal. Booster Pump

Test	1st pump in	1st pump out	2nd pump in	2nd pump out	booster pump in	booster pump out	Turret tip	Pres.	Hand Lines 1¼	1⅛	1⅛	1¼	G.P.M.
I.	..	120	..	120	55	150	2"	100	(All tips, ⅞" — 100 lbs.)				2109
II.	..	120	..	120	60	180	1¾	145	50	50	65	65	2361
III.	..	100	..	100	45	180	1¾	145	45	45	58	58	2285
IV.	..	160	..	...	..	...	1¾	45	75	75	..	..	1425
V.	..	130	..	...	5	140	1¾	85	55	55	..	..	1520
VI.	..	120	..	120	50	150	2	100	50	45	75	70	2467
VII.	50	205	..	...	5	105	2¼	60	(2 lines— 1st pump to booster)				1167
VIII.	40	150	..	...	60	150	2¼	98	(4 lines— 1st pump to booster)				1491
IX.	40	160	..	...	80	175	2	140	(4 lines— 1st pump to booster)				1407

Fatal Bus Crash

To the Editor:

The Arbutus and Lansdowne volunteer fire companies of Baltimore County, Maryland, have ceased to be surprised at anything. This new attitude started when the two engines were homeward bound from a carnival near Washington, D. C., last June 7.

While proceeding on the Washington-Baltimore Blvd., long recognized as the worst death trap in the state, one of the volunteers happened to glance toward the rear in time to see a terrific burst of fire sprout from the roadside about a quarter mile behind. The Arbutus engine immediately turned about and was on the scene in a flash. They were amazed to see a huge bus and a coupe in flames, with power lines just beginning to drop on to the wrecks, as the bus had sheared off the bottom part of a power line pole. The wires, however, fell to ground alongside wreck.

The writer turned the Arbutus booster line on the bus but quickly abandoned the effort, as it was apparent the small stream would have no effect on so large a fire in time to prevent explosion of the two 75-gallon gasoline tanks on the bus. Word was then received of a well about 300 feet distant and the engine led off a line of 2½-inch hose. This proved fruitless as the well was inside a house and sealed with concrete.

The 150 gallons of gasoline in the bus exploded at this time. The Landsdowne engine had gone a half mile down the road to fill their 300-gallon booster tank which is emptied for parades. The explosion hazard removed, they then approached close with their booster line and proceeded to wet down the remaining parts of the bus.

Two persons were killed in the coupe, which was blazing so fiercely on our arrival that it was ignored in the effort to extinguish the bus fire. All the passengers had escaped from the bus but this fact was not known at the time, it being feared that someone was trapped in the burning bus.

In reconstructing the accident, it was found that the coupe made a left turn in front of the bus. The bus ran right over the coupe and both vehicles rolled over. Twenty-six soldiers scrambled from the bus which caught fire instantly. One man was hurled from the coupe and split almost in two by the force of the impact. A woman in the coupe was decapitated and her body burned with the car.

In the resultant confusion, scores of persons trampled over the power lines which were knocked down by the wreck, but no harm resulted. Had the collision taken place thirty feet up the road, both blazing wrecks would have plowed into a row of tourist cabins.

The Arbutus ambulance was also on the scene and the crew gave treatment to numerous persons. Due to the fact that telephone lines were down, it was over ten minutes before the local fire company arrived, and almost half an hour before a local ambulance arrived.

OTIS SMITH,
Baltimore, Md.

Novel Device Used in Jefferson, Wis.

To the Editor:

I have been reading FIRE ENGINEERING for some time and I find much valuable information therein.

On one of my inspection tours of one of our industrial plants, I happened to go onto the roof. I noticed a pipe running parallel with the top of the roof. It had sprinkler heads on it. I investigated and the superintendent told me that it was put there for fire protection. In case of fire there is a valve located in the building which can be readily opened and the roof flooded. In the summer when the roof gets hot, the valve is opened and the roof cooled. A drain valve is also attached to the pipe so that it can be drained in the winter.

Chief John H. Zeh

This arrangement interested me very much and perhaps others have already adopted it.

Very truly yours,
CHIEF JOHN W. ZEH,
Jefferson, Wis.

Practices at Mingo Junction

To the Editor:

Previous to 1939 our city had no organized fire department, comprising only three paid men and a part-time chief and what unorganized groups could be mustered into service at times of a fire. This not only proved disastrous to property and equipment, but was at the same time a great expense to the city. In the middle of 1935 we undertook to organize a volunteer company comprising forty men. These were trained in fire fighting, inspections, first aid, hose and ladder evolutions, etc. We didn't stop at this but continued right on throughout our monthly meetings where half of the time is devoted to class room study.

Every man has a text book issued to him. During the course of the meeting the Chief acts as the instructor and provides each man with a mimeographed copy of false and true or completion statements. Each man in regular turn around the room reads the question aloud. This starts a series of discussions, whereby each man has an opportunity to contribute some good in general. This, together with our practical work, has proven very effective as we feel very proud of our fire loss which has been recorded for the last five years. It has dropped to a quarter of what it was the five years previous to 1935. I believe that a good organized department, paid or volunteer, backed by adequate laws and regulations governing fire inspections, building construction, together with a well-planned and executed training program, is of greatest benefit to any community.

CHIEF JOSEPH A. GRANTONIC,
Mingo Junction, Ohio

An Opportune Arrival

To the Editor:

On April 25 we had a $30,000.00 fire in a furniture warehouse. I had four lines of hose on this fire. Just as I had the last two lines laid in from the pumper, I discovered I was short a fireman (which is always the case). A gentleman stepped up with a nozzle holder, quickly introduced himself and said, "If this is what you need, you are perfectly welcome to use." Not having enough large fires to warrant the purchasing of a nozzle holding device, and then to have an emergency arise where you could use one and have a salesmen drive up at the right moment, is just a little hard to believe. Anyway, it happened to me.

On February 28 I ordered 125 feet of aluminum ladders. On March 27 we ordered a commercial truck with cab and 500-gallon pump. The minor equipment is to be kept in compartments with the ladders lying on top of the compartments. There is to be a 200-gallon tank with two 1½-inch lines from the pump for instant use on arrival at fire. I intend to lay lines from the plug to the pump stationed at the fire. I am glad we ordered when we did because the delivery on trucks is falling away behind schedule.

Chief C. G. Lipps,
Abilene, Kans.

Major Royere Retires from French Brigade

To the Editor:

The enclosed photographs were taken on May 14, 1941, on the occasion of the retirement of Major A. Royere from the post of Commandant de la Compagnie de Pompiers de Changhai, after twenty years of service, during the last ten of which he was in full command of the unit.

The parade was carried out in a most excellent manner. Various types of fire engines fully manned passed in review before the French Consul General and other officials and their guests. During the course of the ceremony Major Royere was decorated by the French Consul General.

Shanghai, being of a composite character and comprising areas under various administrations, early realized that one of the primary concerns was the preservation of both life and property. Relations between the Brigades have always been of a most friendly character. The reciprocal working arrangements for dealing with fires is designed to promote and facilitate a continuance of the spirit of harmonious cooperation which animates the Fire Brigade of each administration.

Captain H. G. Reed,
Chief Officer,
Shanghai Fire Brigade

Questions Publication of Descriptions of Sabotage Devices

To the Editor:

I have just read Vol. 94, No. 6. I am always looking forward to the receipt of this magazine because it contains a great deal of very interesting and valuable information.

I certainly was surprised, however, to read the article entitled "Sabotage by Fire." While your magazine, of course, is read principally by those of us who are interested in reducing fire losses, it is inevitable that with a large circulation, such as your magazine enjoys, many of its numbers will fall into the hands of others.

The article in question undoubtedly was written with the best of intentions. It is my considered opinion, however, that an article such as that should never be published because it really is an encyclopedia for someone who feels that he wants to commit sabotage. I am not referring to a saboteur who has been definitely appointed to do this directly by his own Government, but I am referring to the so-called crackpot who really attempts this dirty work on his own. He naturally would not know, for example, what potassium might do; what phosphorus might do, but he certainly would, with a great deal of glee, look at the picture shown on page 282, which represents a device used to start grass fires. Unfortunately, from our own experience, similar devices have been used to start fires a whole lot more important than grass fires. This device is so simple, and the description of the method to be followed in using it is so plain that I seriously doubt the wisdom of publishing an article such as that.

The description of the two types of acid used during the last war to set fires is another point which I believe should never have been mentioned in public. I have repeatedly been asked by different persons just what actually was contained in this device to start these fires and I have invariably replied—"some kind of acid and some other substance." Of course, had I been talking to a fire investigator or someone directly charged with fire investigation or sabotage investigation, on whom I could absolutely depend, I would tell him so as to offer him an opportunity to trace possible purchases of such materials.

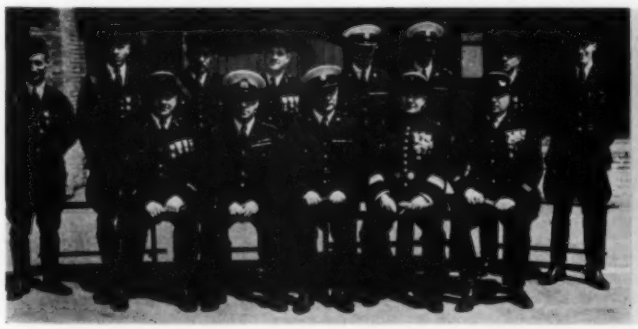
The method followed in using phosphorus, of course, is simple. It is known to the chemist and the fire investigator, but why publish it to someone who does not know how to use it and who now will know how to make a perfect fire-setting device?

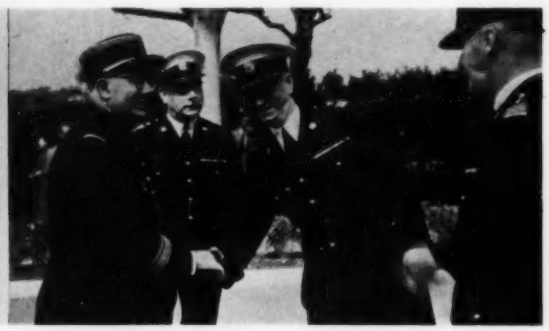
The marvellous description of how to set a wharf on fire certainly will not be of any help to those who are attempting to keep wharves from burning up. They know what can be used and what has been used but I still fail to see why this method should be broadcast and what possible purpose can be served by it.

The description of how to set a house on fire by using gas, simply by permitting gas to escape and leaving an open flame in the room, in my opinion, certainly will be something to consider whenever we have an investigation of a fire of that type, namely whether the man thought of it himself or read it in a publication.

I am a strong advocate of teaching every fire investigator or anyone charged with investigating sabotage everything that every other investigator knows. In a recent speech before the N.F.P.A., at Toronto, I advocated the exchange of information and the most extensive possible use of the science of chemistry in combatting this menace. At that time I knew I spoke only to persons intensively interested in fire fighting and in the reduction of fire losses.

I fully appreciate, of course, that my opinion on this article is only the openion of a reader of your magazine, but, during the course of our own work here in Canada in investigating fires, we have found sufficient devices to keep us





Members of French and English Fire Brigades Meet on Occasion of Retirement of Major Royere.

Left: Left to right are Lieutenant R. de Blacker, Second in Command of the French Brigade; W. J. Gorman, Chief Officer, Harbour Fire Brigade; Captain H. G. Reed, Chief Officer, Shanghai Fire Brigade; Major A. Royere, Retiring Commandant, French Fire Brigade, and Capitaine G. Bossu, Commandant of the French Fire Brigade.

The back row comprises officers of the French Fire Brigade, (in French uniform): W. Charters, Deputy Chief Officer, Shanghai Fire Brigade, and H. A. Crickmer, Technical Assistant, Shanghai Fire Brigade.

Right: Major Royere shaking hands with H. A. Crickmer as he advanced to welcome us to the parade at which he handed over command of the unit to Capitaine G. Bossu. On Mr. Crickmer's left is Mr. W. Charters, Deputy Chief Officer, Shanghai Fire Brigade, while I am standing in the background.

busy and I certainly do not believe, and I would like to repeat, that a good purpose could be served by advertising all the possible methods, that the incendiarist or the saboteur can use.

Yours very truly,
HARRY RETHORET,
Gen. Mgr.,
Fire Underwriter Investigation Bureau
of Canada, Inc., Montreal, Que.
June 21, 1941.

Editor's Note: The article referred to by Mr. Rethoret was published in the belief that the better informed the fire service was on the methods and materials employed by saboteurs and arsonists, the better would it be able to check or apprehend these enemies. While some crackpots might read the article, it is believed that there are relatively fewer of these individuals in the fire service than in other fields. After all, the information included in the article referred to may be secured from many different sources. However, we're glad to pass on to our readers the views of Mr. Rethoret. They offer food for thought.

Rural Truck Aids in Fighting Dairy Fire

To the Editor:

On the morning of June 15, the Napa, California, Fire Department received a call at 3:00 A. M. for a fire on a dairy ranch about three miles out of town. The rural truck, manned by two firemen, was dispatched. Upon arrival they found one large barn storing 400 tons of hay and some equipment totally involved and another barn about 15 feet away burning fiercely. This second barn contained milking equipment and a refrigeration plant and much other equipment used on a dairy ranch. A quick survey of the situation disclosed an irrigation pipe and a standpipe about 200 feet away into which a suction was dropped and a single line of 1½-inch hose with a fog nozzle was laid to the fire. The pump was immediately put into action with the 450 gallons of water in the tank while the suction hookup was being made. More hose was sent for from town and a 2½-inch line laid as a precaution to other buildings in the immediate vicinity, but was not used. The fog nozzle allowed the men to approach close enough to extinguish the fire in the second barn until the other structure had burned down. Pumping time on the job was about five hours. The loss of the barn, which burned down, was estimated at $10,000, and loss on the other barn about $500. If this latter structure had burned, it would have added another $15,000 to the loss. This just goes to show what can be done with a water job. This particular truck is going on eight years old and is credited by the Underwriters with saving over $800,000 worth of property. Chief C. F. Otterson, who has commanded the Napa Fire Department for over thirty-five years, is the man who made the first water job in the United States. He had a hard time pioneering this type of apparatus as many people could not see the value of it, but now it is coming into almost universal use.

EDWARD L. BRYANT,
Napa, Calif., Fire Department

Showing the Stop Made by Napa Fire Department

Two-Way Radio Equipment Installed in Waterloo

The latest equipment installed in Waterloo, Ia., is a two-way frequency modulation radio. This is in connection with the police department. However, the Fire Department is equipped with remote control equipment to the transmitter so that fire department operators may talk directly to fire department cars without going through the police department.

This equipment is one of the very latest developments in radio. It is a "Motorola" manufactured by the Galvin Manufacturing Company of Chicago, Ill., and operates on high frequency of 37,000 both ways. Because it is frequency modulation, it does away with the static and noise entirely.

In running tests it has been found that a person can talk from car to car a distance of approximately twelve miles, from car to the station a distance of approximately thirty miles, and from station to car a matter of 50 miles. Reception is distinct and very good.

At the present time, the ordinary radio sets that pick up police radio will not pick up the communication from the frequency modulation equipment. In that way the public is not informed of what goes out over the police and fire radio.

CHIEF RAY TILLER,
Waterloo, Ia.

Electric Drill Spark Ignites Lacquer in Pipe

The Herschede Hall Clock Company of Cincinnati, Ohio, suffered a fire and water loss of between $60,000 and $70,000 because it undertook to comply with instructions from fire insurance underwriters.

While workmen were using an electric drill to make openings in a two-foot pipe, used to carry off fumes from the lacquer booth, a spark ignited deposits inside the conduit and flames burst out.

The underwriters had ordered openings cut in the pipe so that the deposits could be cleaned out.

Most of the damage was caused by water, as the heat set off 15 automatic sprinkler heads. The fire was confined to the assembly room, on the first floor of the two-story brick building.

The Herschede Company holds the contract to supply the city of Cincinnati with parking meters. None of the completed meters was reached by the flames, but parts of some still to be assembled were believed to have been damaged.

Firemen under Assistant Chief Chester Held used vapor nozzles to fight the flames. The large lacquer tank in the spraying room was covered with a tarpaulin to smother the fire when it spread there from the pipe.

The loss was estimated at $50,000 to stock with $5,000 to the building. Company officials believed the total figure might reach $70,000. Many delicate parts used in clocks and other devices made by the company are easily damaged by heat and water.

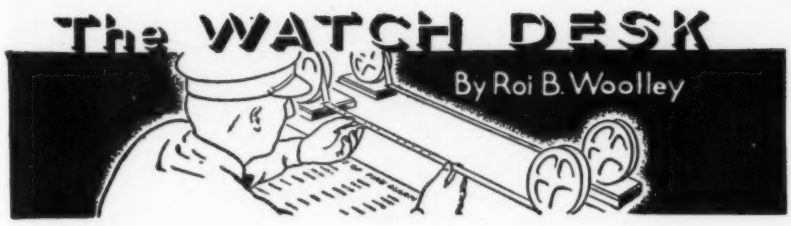
Cornoyer Takes Defense Post

Fire Chief Lawrence C. Cornoyer, of the St. Louis, Mo., Fire Department, who worked up from the ranks to become head of the department three years ago after thirty-four years service, resigned from the fire department to take a place in the national defense program as Chief Inspector of Plant Protection in the St. Louis Ordnance District of the War Department.

In his new post, he will be in charge of a force of eight supervisory inspectors and will have the responsibility of preventing sabotage and reducing fire hazards in plants engaged in defense work in several Midwestern states.

Chief Cornoyer had an outstanding record as a "fighting fireman" and as an executive. He was commended for his efforts to aid the injured and dying in the Mill Creek sewer explosion on April 25, 1935, in which five WPA workers were killed. He rushed into the sewer without a gas mask after the explosion to expedite rescue work.

Last January, Chief Cornoyer was given a gold medal by the St. Louis Insurance Board for meritorious service.



Our inquiring reporter overhauls the firemanic news of the day

Brother, Page Mr. Ripley!

We start off with this choice item, first because of its oddity, next, because so many of the Faithful shot it in to us. Here 'tis:

Believe it or not—in Grand Rapids (Mich.) a bolt of lightning struck an electric transformer at the Waddell Manufacturing Company, starting a fire. Along came a second bolt, which struck the nearest fire alarm box, turning in the alarm, bringing the Brothers to the scene who quickly extinguished the blaze. Thanks, all you contribs'!

* * *

Johnny Weisberger Contributes

Demon 'clipper' and buff, John Jay Weisberger, New York City, can always be counted on for some good'uns. Here are a few:

Seattle: Firemen went to a beer bust, but in line of duty! Uh huh—a truck loaded with bottled 'beverage" broke into flames. Firemen, called, were ready for action when the bottles began to explode. They kept right on "blitzing" until the fire was out. Battalion Chief Joseph Spranger said beer got busy just in time, before gas' tank let go. News item sez "after it was all over, firemen had one on the truck." Tut tut, Men what of the R & R!

* * *

Brielle (N. J.): Members of Brielle Vol. F.D. were routed from their beds by alarm and reached their firehouse just in time to snake their apparatus out before it burned. Yeah—the fire house was afire. Police H.Q. on second floor of Muni' building was burned out but the Vamps held fire and saved the department quarters. This occured a year ago this month (July).

* * *

Three Rivers (Mich.): For speeding 55 miles an hour in response to a false alarm of fire, fire Chief Joe Roll (what's in a name) paid a $3 fine in court of Justice o' Peace, J. L. Van Selous (Mabbe we ran this 'un some time ago, but it's worth an encore!)

* * *

Attends "House Warmings"

We're indebted to Earle Robinson for this classic. It's about Earl Rinehart, who runs a restaurant and tourist cabins near Des Moines (Ia.) is gonna spend $2,000 (he says he may have to borrow part of it) on a one-man fire department he will operate. Earl's neighbors all have his phone number listed beside their own phones. Since 1938 he's been driving to neighborhood fires in a truck equipped with two chemical tanks. The location is outside the city, where city fire fighters cannot operate legally. The idea is, that if the person who has the fire has insurance or can pay, Rinehart collects enough to cover the cost of chemicals used—around $2.50. The new truck, so 'tis said, will have three chemical tanks and 500 gal. supply of water, with ladders. Rinehart is said to average around four or five fires a year.

'Most any day now we can expect a ring at the door-bell, and a guy will present a card and say, "got any fires today? Well, when you need me, just gimme a ring, and I'll be right over to put it out! My rates are . . ."

* * *

Lost, Strayed or Stolen!

A dispatcher in the Bronx (N. Y. C.) fire alarm headquarters was nonplussed (to put it mildly) when a woman called in and reported that there was a "piece of fire apparatus" over on 203rd Street and said it had been there for some time, and the boys had gotten into it, were ringing the bell and blowing the siren, and couldn't something be done about it. Well, the police responded, towed the job—a nice shiny red chief's car, from a suburb of the big city—over to a nearby engine house. Meanwhile, the dispatcher had made inquiries and found that one of the neighboring chiefs had decided to play "visiting fireman" and had parked the car while he went about his business, and forgotten to lock the doors. The kids had a swell time, if mebbe the chief didn't!

* * *

"Response Troubles"

According to John Callahan, Beverly Farms (Mass.) clipper, they were a bit put out at West Newbury (Mass.) not so long ago, because the fire wasn't put out a bit faster. Some "citizens" were quite irate about it. All because the local F.D.'s hose truck was tardy in arriving at fire which caused $6,000 damage. The delay, it developed, was due to fact the regular driver was out of town. Other Vamps eventually got the apparatus to the scene, but meanwhile fire levelled a barn, two outbuildings and damaged a Main street dwelling.

And then there's that yarn about the Brothers of Kennebunk (Me.) where two F.D. trucks, racing to fire in N. Kennebunkport, ran into road soft spot and bogged down. Some of the Brothers loaded impedimenta on shoulders and hiked to the fire, which had started in a home, but which was level with the ground when they got there.

* * *

Excitement Makes a Diff'

Out Vincennes (Ind.) way, five perspiring and embarrassed men struggled to carry a piano into Mrs. Evaline McGiffin's farm home. Seems that it took only two excited neighbors to dash out of the house with the instrument, when a nearby barn caught fire and folks thought the house and piano would burn up! But getting it back was a chore!

* * *

Meat for the Manufacturer!

At Shelbyville (Ind.) a new rural fire truck had just been delivered. A salesman was waiting to demonstrate it to the admiring Braves! Just then somebody phoned that there was a fire out on Hiram Drake's farm. Seizing the salesmen, Fire Chief Bernard Jones and an assistant hopped aboard and opened 'er up. Inside half an hour, our reporter says, the fire, eight miles from city, was out, and the Vamps were en route back. The chief said the truck passed all tests. Lucky salesmen!

* * *

"Follor Me, Boys!" or the Story of an Embarrassing Moment!

Larry Donovan pops up with one from Boston which gets three stars. Hast to do with a Brighton (Mass.) dentist, who hadda rush another dentist friend to a train in Boston . . . got him there only to find he'd left tickets at home, so he broke speed laws to Brighton, and back, just making the train by a whisker. Well, en route to Brighton for second time—congratulating himself on fact he'd not been snatched by a traffic cop, which woulda been very bad because he didn't have car registration with him, his meditations were interrupted when he spotted a car at the side of N. Bacon St. with smoke seeping out from under the hood, and two men and a woman standing helplessly by.

Our hero(?) pulled up (it was very early in the morning and street was quite deserted) and said **"Have you called the fire department?"** They hadn't. **"Then look"** said the dentist, **you try ta disconnect the battery; I'll turn round and drive back to a fire-alarm box."** Which he did, only it was four or five blocks back. Then he turned his car around so's he'd be headed in the right direction and awaited the Brothers. And they came, prompt to the call! **There's a car on fire up the street** yelled the Doc' **follow me and I'll lead you to it. O.K. mister, let's go** said the deputy chief. And the Doc' led the parade, at the double, up the street!

Unfortunately—WHEN THEY REACHED THE PLACE WHERE THE BURNING CAR HAD BEEN THERE WAN'T NO CAR!

Was it a phoney? Did he talk himself out of it? You tell 'em Doc!

* * *

Vamps Need More Noise, So Mt. Vernon Gets Siren!

Don't get us wrong on that siren! We're referring to the plight in Mount Vernon (N. Y.), where smiling Chief John Gibson who presides over some 450 vamps and a good sized force of paid men, recommended that the 600 lb. brass fire bell that had summoned (or tried to) the Vamps since 1895 be replaced by a nice "streamlined siren." The Mount Vernon Board saw eye-to-eye with Chief Gibson and so, before any more of the Brothers sleep through 3-alarmers the siren will be installed with pomp and ceremony.

* * *

Another Nero?

Nero fiddling while Rome burned had

nothing on 18-year old Maplewood (N. Y.) artist David Dean, who painted, while the studio in which he was studying burned. Yeah, of all things he was painting a bonfire! He was told to go out and paint the blaze in a field adjacent to the studio, and did. Meantime a spark had ignited the studio's roof, but David painted on until his instructor Van Deering Perrine called to him. While firemen were knocking out the roof fire, Dean went back to painting.

* * *

Considerable Misfire!

Workmen near Bayard (Ia.) started to dig a well for water on the Ed Sammon farm, but to their surprise brought in natural gas instead! Gas has been flowing steadily, but it got so smelly it hadda be piped 42 ft. in the air, where it was lighted. Flame can be seen several miles away at night (leading some folks to think it's time to call the Vamps!)

* * *

Fleet Fire Fighters!

Out in Falls City (Neb.), says our Clipper K-9, fire-fighters Poteet and McIlvain noticed straw burning on the rear of a passing truck. In two jerks of jackrabbit, they had the 'gine out of the house and on the way, overtaking the portable blaze a block away and promptly squelching it!

* * *

Hot Off the Ticker

Because courts ruled he was discharged improperly, fireman Edward J. Phelan, Saratoga Springs (N. Y.) will receive $6,661.89 back pay from Saratoga Springs Common Council. . . . Arthur J. Hanna, inspector steamboat sanitation, U. S. Public Health Service and Joseph Billings, President Steamship Sanitation Co., N. Y. C. were killed by hydrocyanic acid fumes while fumigating liner at Hoboken (N. J.); they were "too familiar with gas" and failed to use masks. . . . New York City F. D. badly undermanned; hydrant inspections discontinued; aerial trucks in high hazard districts rolling with chauffeur and three men, etc. . . . When chair in which he was sitting in Peabody (Mass.) central fire house gave way, Arthur R. Emerson, aide to Chief Wm. C. Mahoney, Peabody, took nose dive, went to hospital with head and neck injuries. . . . Apparently mistaking an open window for a doorway in his smoke-filled room, Wm. Bruwer, 29 plunged to his death from third floor apartment, the Bronx (N. Y.) Fire was trivial. . . . At Greenville (N. C.) we're told by Clipper Earle Robinson, the alarm rang at fire station; men leaped onto truck, rarin' to go—but they couldn't go anywhere because some miscreant had siphoned all the gasoline from the truck. . . . Leon Meany says something like a record was set when the four Fire companies of Fairfield (Conn.) answered 83 grass fire calls in one day. Boys, cruising around in a car helped set the record. Yeah—they were nabbed! . . . Nine valuable Palominio horses, including mare and day-old foal, perished when fire swept stable and barn of Paul Fisher, Souderton (Pa.) 46 others were saved . . . fire at Pimlico gave the Brothers a good workout—but all nags were saved . . . Thomas Vaughan's estimate was so close it cost him his life. The 27-year old worker told a crane operator at Radford (Va.) ordnance works the big machine would clear high tension wires. He was right. It did, but crane passed so close to wires it created a "spark gap" and 6,300 volts jumped across space, killing Mr. Vaughan. . . .

Five Vol's of Freeport (L. I., N. Y.) were injured, one seriously, when two pieces of fire equipment collided while responding to fight a grass fire. Leroy Smith, Hose Co. 1 was taken to hospital. . . . Wanna buy a duck?—no, a firehouse? Not-so-bad looking brick firehouse of Truck (double co.) New York City, was put up for sale. Plan is to build new house on less busy traffic lane to house Eng. 8 as well as H & L 2. . . . That was a "record" fire in Los Angeles, when R C A Mfg. Co's warehouse burned and 250,000 phono' records were total loss. . . . New York City will have another test for firemen before snow flies so 'tis said. . . . Richard M. Salamone was a very red faced home owner when firemen arrived to put out fire which started while he was painting stairway with shellac in his home in Needham (Mass.). He is chief of Needham F.D. and has lectured extensively on fire prevention! . . . **"I couldn't sleep nights, so I went for walks and set fires"** was excuse of a youth in Troy (N. Y.) when arrested for setting blazes in a school, bowling alley, barn and icehouse. . . . Three members of N. Y. F. D. including Vincent Kane, were appointed to newly created Fire Defense Committee of New York State Defense Council by Gov. Lehman. Kane, in case you don't know it, is Prest. Uniformed Firemen's Ass'n of Greater N. Y. Some whispered criticism of fact that State Fire Defense Council has scant representation in chief officers. . . . When a boat exploded and burned near Brielle, N. J., eleven men narrowly escaped death by burning and/or drowning. . . .

* * *

Sam Larson, 49, New York City hung his head in shame as he pleaded guilty to turning in his 47th false fire alarm, since 1915. Six months in workhouse plus $50 fine!

* * *

How's Yer Beauty Rest?

According to Iowa's hottest newsclipper, Earle Robinson, they had an unimportant little fire in the basement at the "Savery" (we wot not of the "Savery" but it seems to use beds). A few mattresses were afire and were tossed into the alley. Well, the story has it that the guy who hauled 'em away took a fancy to a coupla of them and hauled them home, placing them in his garage. The yarn says further that they still were afire inside, and the fire resulting proceeded to burn up both his garage and truck in it.

* * *

Cause and Effect

Out in Arkansas City (Kans.) D. L. Taylor drove his automobile over an iron bar. The tire threw the bar at the gasoline tank and punctured it. Exhaust ignited the flowing gas. Resultant fire consumed the automobile. Next!

* * *

How They're Dying!

We list some of current fatalities (part of the 10,000 a year or more that make fire fighting no sinecure):

Eleven children met death in widely separated districts of Quebec province in flaming homes within 24 hours. Seven dead in one fire, four in another. In both cases, parents were away from home when fire broke out (night).

Unexplained fire in mattress of bed to which 3-year old boy New York City was confined, killed lad.

Three boys were burned to death, fourth died of injuries, when their 11-year old car overturned near Philadelphia (Pa.). There'd been a party!

Three women, and 11-year old boy were suffocated, man critically injured and 12 firemen overcome, in fire which swept interior of Girls Club and Mission Community Center, San Francisco (Cal.).

Four members of Earl Butter's family, Orchard (Colo.) burned to death when explosion of can of kerosene started farm home fire.

Trapped in their beds, when heating stove explosion enveloped house in flames, six persons burned to death, a seventh, severely burned, taken to hospital (Harviell, Mo.).

Mother and two children were fatally burned in farm home fire near East Brunswick (N. J.) despite of efforts of neighbor who ran half mile for help. . . .

In Bowling Green (Ky.) a mother, Mrs. Joe Hall, gave her life to save her 6-months old baby from death by blazing gasoline. The Halls were cleaning a pump when gas in open bucket caught fire. Mother grabbed bucket, ran from house, husband grabbed child, but spilled gas, so burned mother she died.

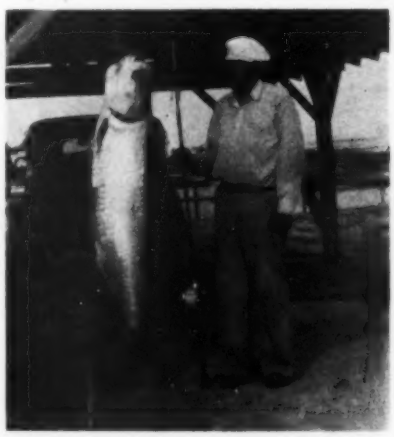
Quickly spreading flames took lives of two children, critically burned their mother, after she had saved four youngsters, when fire wrecked home, Revere (Mass.).

In Leicester (Mass.) four children burned to death when home burned to ground. Cause not given.

Gerald Hickey, 4, burned to death in a grass fire near his home, on Troy-Schenectady road (N. Y.)

When her dress caught fire while she was working near kitchen stove, Mrs. Mabel Ellsworth, East Aurora (N. Y.) was so badly burned she died.

(*Continued on page* 464)



The Big One That Didn't Get Away

Herewith is shown Chief W. W. Stephen, Secretary-Treasurer of the Southeastern Association of Fire Chiefs, with a big tarpon he caught near Punta Gorda, following the Southeastern convention at Jacksonville in June.

WAR FARE

Alarms and Discussions Clipped and Culled from the War News of the Day, of Interest to the Fire Service.

Roi B. Woolley

New Peacetime "Hazard"

The Wurdig family, Bloomfield, Conn., has rough idee what it feels like to be bombed from the air. Three Wurdig sisters, Louise, 19, Lorraine, 12, Maureen 8, escaped injury when a lead weight fell from antenna of a Flying Fortress bomber en route to Westover Field, Mass. The 6-lb. weight went through roof struck a Victrola, bounced against wall, just missing sisters.

* * *

"To You, Darling"

In London, Gina, widow of naval officer, drowned at sea after few months of marriage, was given government job. In last big Blitz, clad in dirty slacks and dead husband's school blazer, she fought fires from midnight till dawn and as day came, took other fire fighters into her house for tea and drinks. Wiping her smutty face, she lifted her glass to her officer-husband's picture. "To you, darling," she said.

* * *

Bulletin!

Just as we go to press word comes that Home Sec. Herbert Morrison, in charge of fire fighting services in the British Isles, has announced a 20 per cent increase in the personnel of Great Britain's services, and addition of $4,000,000 worth of equipment. The Secretary says that 8,000 persons recently had to be added to the services and another 8,000 would be called up at end of June, representing one-fifth total increase in personnel. New equipment is being issued, and more ordered. The fire-fighting services in the future will cost about $108,000,000 annually, he stated.

* * *

"Suspicious Origin"

We can't say these fires were all sabotage, but draw your own conclusions:

BROOKLYN: Fire on army transport Munargo at its dock, Erie Basin, Brooklyn, N. Y., called "slight" and listed (by police) as "probably defectitve insulation.

PERTH AMBOY, N. J.: Death has raised to five, the number of crew of 150-ft. motor barge tanker which burned earlier in May. Perth Amboy firemen did great job in extinguishing fire; cause listed as "not determined." . . .

HOPEWELL, VA.: Man was killed, another injured in serious explosion at Solvay Process Co. plant. "No statement on cause."

FRANKLIN, MASS.: A fire extinguisher filled with flammable oil was found in plant of Clark, Cutler & McDermott, engaged in making gun wadding for army, during a fire in plant. "State Fire Marshal's office asked to investigate." Cause of fire "unknown."

BRANTFORD, ONT.: Four planes were destroyed in a fire which swept hangar of Brantford Aero Club. Cause — ....

VEGREVILLE, CANADA: Fire of "unknown" origin swept through British American grain elevator and two annexes. Heavy loss.

PHILADELPHIA, PA.: Just before it was to deliver huge shipment of waste to Frankford Arsenal, Maneyunk waste plant went up in flames. Loss $500,000. Cause—You guess!

* * *

Aircraft Plant Prowler

Police fired three shots at youth discovered inside fenced area surrounding Bell Aircraft Corp. plant, engaged in maing war-order planes. Youth was looking for "scrap metal!"

* * *

Blaze Perils Boat Plant

Fire in pile of rubbish 100 ft. from plant of Elco Works in Bayonne, N. J., where boats are being built for navy, was quickly extinguished by company's own firemen. "No indication of sabotage."

* * *

Blasts Wreck Philly Paper Plant

Two explosions caused, say police, by "incendiary bombs," wrecked two-story brick plant where several Italian-language newspapers are printed in Philadelphia. Fire quickly followed blasts, swept plant.

* * *

Sabotage: Trenton

FBI agents arrested Charles Virok, 42, Trenton, N. J., on charge of having sabotaged defense production at John A. Roebling & Sons Co. Kinkora Plant, Burlington County, by twice shutting off power to draw blocks on which wire was being turned out at plant. Virok held in $7,500 bail. Half hour delay resulted from each failure.

* * *

Ditto: Philadelphia

Added evidence of sabotage in burning of W. H. Lear Co. lumber yard and other property adjacent to Cramp shipyard, Philadelphia, Pa., was uncovered when body of watchman was found in ruins. He had been murdered. Lear firm sold chiefly to defense industries.

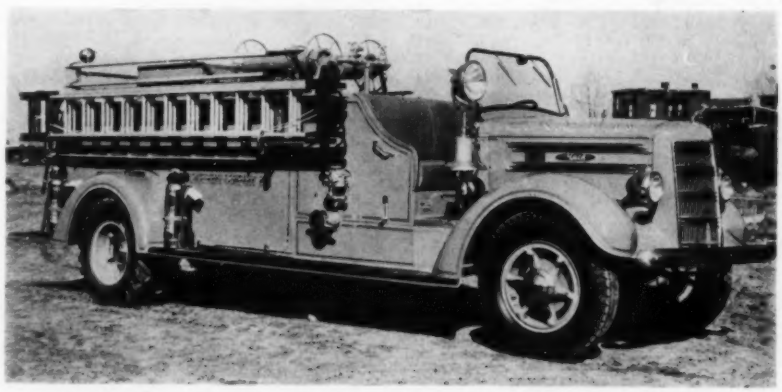
* * *

Hot Off the Ticker

Members of American Women's Volunteer Service in Sidney, near Binghampton, N. Y., says wayward press, are "even learning to drive fire engines . . . to be ready for any emergency". . . . Heo. Lay, 23-year-old Long Beach, N. Y., fireman, died in hospital of ailment which was discovered a week before by physician who examined him for draft. . . . Cats yowling in White Plains, N. Y., led people to complain, which brought policeman Louis Merciante, who chased felines, then, about to leave, he found package, from whence emenated ticking sound. Package, soaked in oil, later disclosed alarm clock, evidently heaved at cat, package and all. . . . Members of Brookside, Protection and Emergency companies of Uniondale, L. I., N. Y., fire department and auxiliaries are taking defense courses in first aid. . . . Yonkers F.D. has been staging one of most comprehensive "bomb and gas" courses thus far "seen in these parts." . . . Drought of unprecedented severity has increased number of fires of "suspicious origin"—particularly near plants engaged in defense work. . . . Bad brush fire on Barren Island, few hundred yards southeast of Floyd Bennett Field for time threatening airport and U. S. Coast Guard base gave firemen and vol's tough fight. . . . Just given to a Jewish hospital Brooklyn, N. Y., a 40-year-old unoccupied building burned from "unknown causes." . . . Four army fliers died when wind forced planes together on practice flight and ships plummeted to ground and burned. . . . Item in the list of government contracts placed "for defense": "Fire Station and Theatre—$21,148." They must figger on showing the boys some hot movies! . . . Two draftees died in crash when their auto overturned and burst into flames near Vineland, N. J. . . . Reports hath it those three London firemen visiting country, now guests of N.Y.C.F.D., are gonna be "kept in seclusion" for some time, somewhat along lines of their three American brother firemen, following their trip to London. Reason? Secrets. . . .

* * *

Eighty bales of waste ordered by navy for cleaning guns were destroyed in fire that badly damaged plant of J. Milton Hagy Waste Works Philadelphia (Pa.). . . . Saboteurs wrecked a French train;



Mack Pumper Which Protects the Consolidated Aircraft Corp. of San Diego, Calif.

This new Type 45 500-gallon Mack pumping engine is ready at all times to meet any emergency, serving not only as a pumper, but also as a crash truck for the company's testing field. The vehicle carries a 300-gallon booster tank and two special hose reels for 600 feet of booster hose. In the body are carried 1000 feet of 2½-inch hose and 300 feet of 1½-inch hose and other items included in the unit's equipment are a foam generating set and foam applicators, asbestos suits, asbestos blankets, CO-2 equipment, and other miscellaneous fire-fighting tools.

an epidemic of fires in Holland has caused high damage and further raised ire of Nazis. . . . Not long after big Jersey City fire, blaze in hold of liner President Jackson caused $100,000 to $200,000 loss, delayed sailing of ship. . . . Fire, following severe explosion swept part of 5-story Niacet Chemical plant, working on defense materials, Niagara Falls (N. Y.). . . . Claimed started by "sparks from passing auto" a fire killed two persons, destroyed contents of 28 large tanks of gasoline at Seminole (Okla.). . . . U.S.S. Cleveland in yards at Camden (N. J.), was slightly damaged by fire—unexplained "short circuit" in hold of ship! . . . School children and travelers on country roads of England are to be mobilized to fight fires started by German incendiary bombs in areas where wheat is harvested. . . . Mayor La Guardia broke lot of 'buffs' hearts when he called in all fire line cards and refused to issue new ones "because of defense." . . . 21,000 candidates for firemen, New York City sweltered through stiff exam'. Only 2,500 will be qualified, but that didn't daunt neophytes. Efforts are being made to enroll as many as possible with Auxiliary Corps, N.Y.F.D. . . . In June, fire apparatus from Long Island (N. Y.) was rushed to St. Lawrence County, across New York, to aid State Conservation Dept. fight serious fire in Adirondacks. . . . With need of rain in many sections, and woods drying out, fears are expressed that forest fires later this year will prove greater hazard than ever before. . . . The collection of old aluminum in New York found a lot of old F.D. "chiefs" insignias formerly used on cars, going into the discard. . . . 17 London firemen and their wives were guests at tea of Mrs. John Winant, wife of our Ambassador over there. . . . A Bronx (N. Y. C.) plant, scene of a former labor riot, was destroyed by a mysterious fire . . . yeah it was working on materials for army-navy. . . .

* * *

"Bottled in Bomb"

According to Jerry Daly, in the "Chief," a sealed bottle floating in the water of port of New York contained a note of warning that an explosion would occur aboard British freighter "Empire Unity" in a Brooklyn shipyard on July 11. Police, FBI and Fire Marshals were on alert—but nothing happened. Oddly enough, the next day —July 12—an explosion in one of boilers of "Empire Unity" badly burned workman. Authorities do not connect the events.

* * *

Stop Press War News

Two men were killed in explosion at American Cyanamid & Chemical Co. closely guarded powder plant South Acton (Mass.). Buildings some distance away were shaken in latest of series of explosions since first of year in one of which, in February two men were killed. Cause?

In Chicago (Ill.) spectacular fire and explosion leveled one of two sections of Grand Trunk grain elevator, leased to government, causing loss of 315,000 bushels of grain and estimated $300,000. Six workmen escaped in nick of time before explosion tore roof off the building. Cause?

ROCKVILLE (L. I., N. Y.) Purge

Moving swiftly on heels of report there were non-citizens on roster of Rockville Center F.D., officials ordered thorough purge of aliens as precaution against possible sabotage of muni' utilities in time of emergency.

* * *

Warning!

Reports from our confidential agent in Washington indicate that lack of space for defense production storage is beginning to show up and is expected to become more serious soon. Unbalanced defense production (shell casings, for example) calls for storage to extent far beyond expectations. Building up great inventories, such as the output of the Memphis powder plant, is another huge demand for space. Stock piling of strategic materials, notably rubber, is beginning to crowd limited warehouse room still suitable for such purposes. In big seaboard cities reports are that docks are piling up, warehouses overflowing with vital materials. This is increasing headaches for fire department! Might be well, Chiefs, for you to speed your checkups!

* * *

London Brother Shows His Stuff

One of the three London firemen visiting this Country, all experts on fighting air raid fires, donned helmet, and 'turnouts' one evening to help New Haven Brothers put out fire in meat market. Two other London visitors, in the city on lecture tour, watched and applauded.

* * *

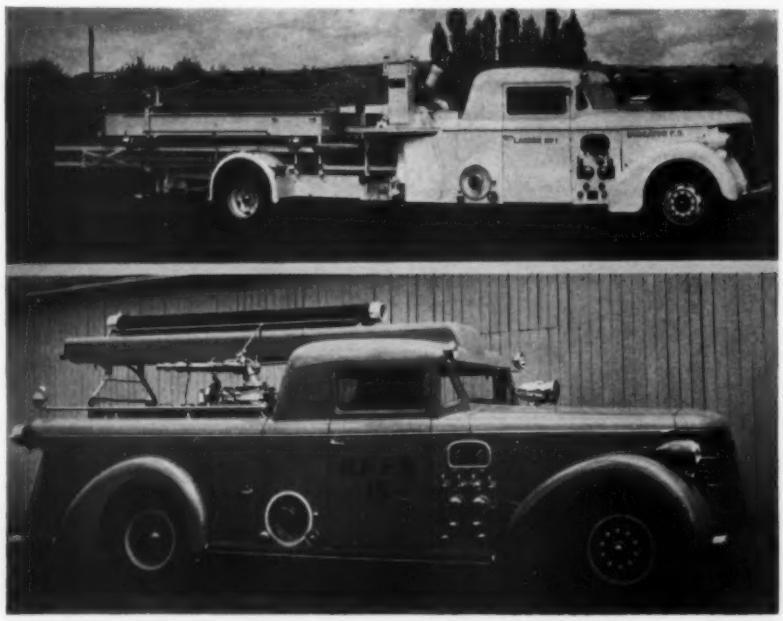
More Washington News—Sabotage

A Washington correspondent, close to source of news, says that amount of sabotage is believed far greater than newspapers lead one to believe. Emery dust here, a broken milk bottle jammed in delicate gears there, a nail through an electric circuit, a cigarette in flammable stock,—all these and scores of other means are being used to retard defense program. Reliable informant says that plants, including army arsenals, are honeycombed with FBI and other government agents and even managers of arsenals don't know in some cases who legitimate employees are and who are spies. A certain fire official has asked that he be taken into the "family councils" of several "defense plants" in his baliwick. Claims if he was kept posted on things he'd be better prepared.

* * *

Gasoline in Fire Pump!

We'd heard about one like this once before and published an item about it; now comes another clipping from a New England contrib' (anonymous) which states that discovery of a portable fire-fighting tank filled with gasoline among equipment used to fight a forest fire which during a 24-hour period swept over 7,000 acres in three Maine towns, resulted in an investigation. Search developed fact gasoline was in a well known make of tank carried into woods by an Oxford (Me.) Boy Scout from a fire truck. He gave it to a garageman, who attempted to use it on flames, whereupon there was a big blaze and explosion. S'far as we know the whole thing is still a mystery. Heavy guards have been placed around government timber storage yards nearby.



American-LaFrance Apparatus Put into Service

Upper, quintuplet combination pumper equipped with sixty-five-foot all-steel aerial ladder and 750-gallon Centraflow pump recently delivered to the Streator, Ill., Fire Department. Besides the usual complement of 1,000 feet of hose and 250 feet of ground ladders, complete booster equipment was furnished, as well as the usual miscellaneous items. An all-steel cab was also provided which comfortably seats three men. Lower, one of four Metropolitan pumpers rated at 1,250 gallons, which were recently shipped to Hong Kong, China. These cars were finished in battleship grey. The mounting of suction hose over the ladder cover is an unusual feature.

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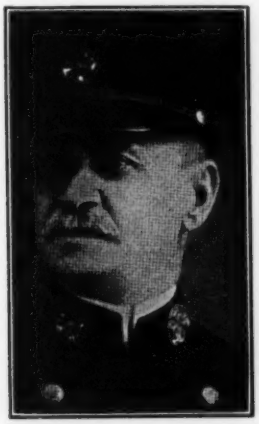

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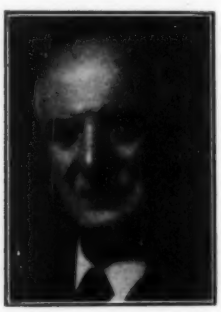

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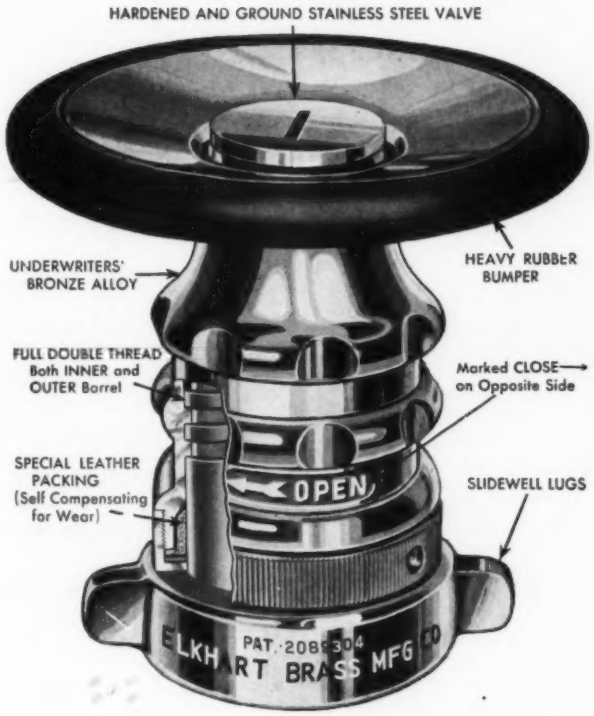
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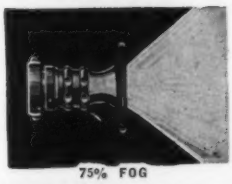
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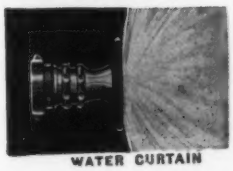
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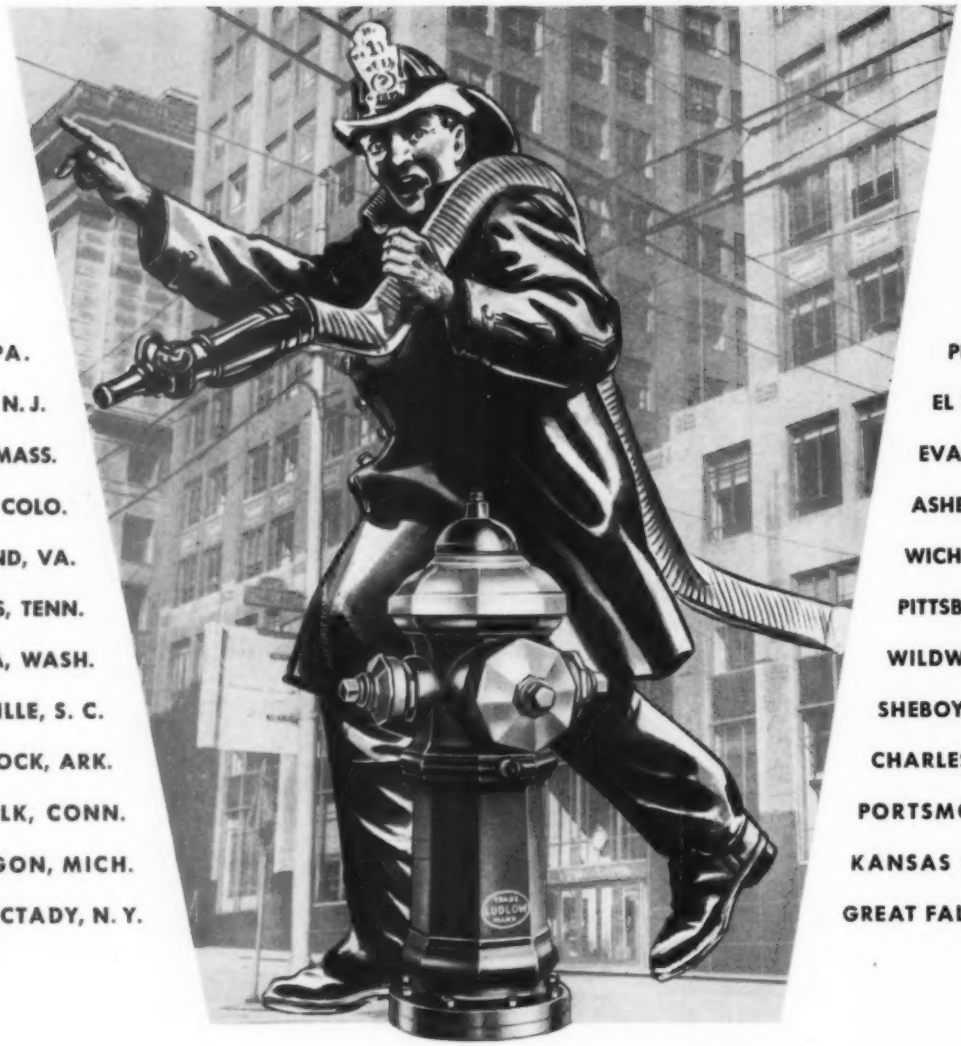

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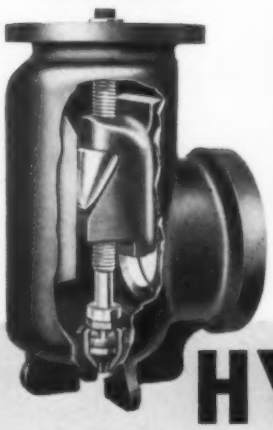

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Among the Fire Fans

By Otis Smith

BOX 33 Association, Ocean Grove, N. J., played host to buff Robert Allen of San Francisco, recently. Mr. Allen is interested in collecting Ahrens-Fox photographs. Frank L. Wilgus, Box 33, pulled the hook of box 33 not long ago for the official test. The boxes are tested once a year and Box 33 Association is allowed the privilege of sending box 33 out over the system, as the box is not plugged out for this test.

The rush of orders to fire apparatus plants makes it impossible to keep up with new and unusual apparatus. However, buffs in the Baltimore area will note that Bethesda has a Hahn pumper, and that Ellicott City has ordered a semi-cab pumper from American-La France. Arbutus, just outside Baltimore city, has a pumper on order from Ward La France. It will be a job similar to seventy recently delivered to the Army.

The Buffalo (N. Y.) Fire Department has a trailer pump in service. Built by the department, the unit will take the place of a regular pumping engine on salvage jobs such as cellar pumping. It delivers 400 g.p.m. on an open butt for salvage work, and 170 g.p.m. on a 1-inch tip, 65 lbs. pressure at the pump. Master Mechanic G. A. Leo designed the trailer unit. Chester D. Schroeck sent three photos of the pumping unit. He offers to send prints to other buffs who may write him at 99 Montrose Ave., Buffalo, N. Y.

Thanks to Lieut. H. McGinnis (we believe that is the correct spelling) of Milwaukee, for an interesting account on sliding poles. But just one correction, Lieut. I did not state that sliding poles were first used in New York; that drawing was merely a collection of facts on the New York Fire Department. Lieut. McGinnis goes on to say that the sliding pole was first used in Chicago, a statement already used in this column. The men of Engine 21 of that city had the bannister parafined so they could slide downstairs faster on an alarm. One day, a fireman was in the hayloft when an alarm hit, and he slid downstairs on a pole used for hoisting hay. The company Captain had a pole of Georgia pine installed in the station, and soon Engine 21 began arriving at fires ahead of companies formerly first due. Marshal Benner then ordered sliding poles installed at all fire stations in Chicago. A three-foot section of the original pole is on display at the Chicago Historical Society Museum in Lincoln Park.

Lieut. McGinnis would like to know who the Chief Engineers of the New York Fire Dept. were before Edward Croker and John Kenlon. Also, were spike hitches used on heavy apparatus in the New York Fire Department before three abreast hitches were introduced? Also, in regards to the City of Brooklyn, before annexation to New York City in 1899, when was a Paid Fire Department established in Brooklyn?

Mr. McGinnis will be glad to supply information on the Milwaukee Fire Department. He may be reached at 1902 West Kilbourn Ave., Milwaukee, Wisconsin.

Mr. W. A. McDonnell, St. Louis (Mo.) Fire Department photographer, thought of something that hadn't occurred to this writer. Noting a paragraph in this column, in which photos of a fatal fire near Washington, D. C., were requested, Mr. McDonnell went one step further and sent the item to the letter column of Popular Photography.

The Friendship Fire Association, Washington, D. C., were shown motion pictures taken by Lt. D. Stein of Engine 16, Dist. of Columbia Fire Department. The reels went back quite a few years and were very enjoyable. Lt. Stein also had one reel on the local Fire Department drill school.

Congress recently appropriated money for another company for the District of Columbia, to be known as Truck Company No. 16. This item from Art Cline, 46 Farragut Pl. N. W., Washington, D. C.

Francis J. Bertrand, 16 Custer St., Jamaica Plain, Mass., sent some snapshots of Boston apparatus. Mr. Bertrand also want to know if the paper W. N Y. F. is available to the public. More on this later.

Blaze Traced to Firecrackers and Boys

A $10,000 fire which did heavy damage to the warehouse of the Steubenville Plate and Window Glass Company and severly injured three firemen, has been traced directly to the use of firecrackers.

Fire Chief Edward J. Green's investigations of the damaged building showed conclusively that the blaze was caused by boys wedging firecrackers between cracks in the cement block foundation. After the firecracks were exploded, smouldering pieces flew into the cellar and dropped on packing cases, starting the fire.

Chief Green expressed the hope that next year, when the state ban on fireworks is in effect, the law prohibiting the sale, possession or use of fireworks will be more strictly enforced.

This is but one of the many fires traceable directly to fireworks.

Chief Houston Marks Twenty-fifth Anniversary

Chief Barney J. Houston is celebrating his twenty-fifth year as head of the Cincinnati, Ohio, Fire Department.

Chief Houston, who has been with the department for thirty-eight years, was instrumental in organizing the Fire Prevention Bureau.

The establishment of the bureau came about as a result of an accident. Chief Houston was injured and hospitalized as a result. He prevailed upon the Chief, his superior, to permit him to establish the bureau during the period of his convalescence. The bureau proved its worth at once. Fires were reduced that year and he was made supervisor of the bureau.

In 1916, when Chief Houston assumed the leadership of the department, it ranked twenty-seventh in rating on efficiency and effectiveness. In 1940, the local department took first place and was awarded a plaque by the United States Chamber of Commerce. Also, since he headed up the department, there have been four insurance reductions, and a new fire alarm headquarters has been completed and new equipment installed.

4-Wheel Trailer Carries Reserve Supply of Hose

A new four-wheel trailer has been placed in service by the West Bend, Wis., Fire Department to carry the extra supply of hose which was previously stored on the floor of the fire house.

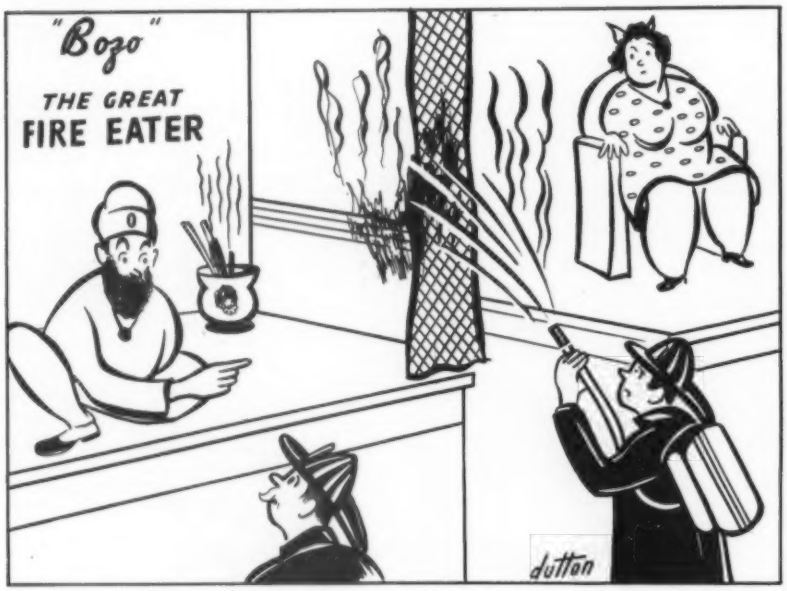
In the past, when extra hose was needed at a large fire, it was necessary to dispatch a truck from the fire to get the hose. Considerable confusion and loss of time resulted from this practice.

The solution to the problem has been found with the purchase of a trailer equipped with automatic brakes, and a jaw clamp hitch, so that it can be attached to the bumper of any car and be brought to the fire. All of the hose that is not carried on the trucks is loaded on the trailer which is capable of carrying 2,000 feet of 2½-inch double jacketed hose. There is also a compartment for one ton of foam powder. The hose can be laid out from the trailer just the same as it would be from a regular pumper, that is, without having to do any coupling.

Trailer Equipment of the West Bend Fire Department for Reserve Hose

Standing, left to right, behind the trailer: Fred Schultz, Assistant Chief; Joe Kincaide, Fireman; Set Mayer, Chief Engineer; George Kuehlthau, Chief, and Math Fisher, Assistant Engineer.

FALSE ALARMS



"I was all set to swallow—when I suddenly sneezed!"

CHAIN LETTER

Over four years ago we swore never again to have anything to do with the insidious chain letter. We didn't wish to revive that old frenzy (heaven forfend) but the temptation to send a chain to 2493 names in one swoop instead of the usual five was too great to resist. Just think of the returns!

"Dear Friend:

This chain was started in Reno with the hope of bringing happiness to tired business men. Unlike most chains, this one does not cost any money. Simply send a copy of this letter to five male friends, then bundle up your wife and send her to the top name on the list. When your name gets to the top you will receive in return 15,176 gorgeous girls.

A Friend.

P. S.—Have faith! Do not break this chain. One man broke the chain and got his own wife back."

If the Romans had as hard a time learning Latin as we did in school, it is no wonder that the language died.

PURELY INCIDENTAL

Mrs. McTavish was making the last payment on the baby buggy and the clerk in the line of duty, thought it best to converse.

"And how is the baby, Mrs. McTavish?"

"Oh, he's fine; he's getting married next week."

Breathes there a man with soul so dead, who never hath turned his head and said, "Hmmm, not bad!"

BARE TRUTH

Girls when they went for a swim,
Once dressed like Mother Hubbard;
Now they have a different whim
And dress more like her cupboard.

—Analyst

HUMOR FROM ABROAD

The practice of lighting cigarettes off incendiary bombs is to cease forthwith, as this amounts to a grave and callous insult to Adolf.

Unexploded H.E. bombs are definitely not the property of the finder, and it has been reported that members of the Auxiliary Fire Service are taking these for use on November 5th. These bombs rightly belong to the enemy, and upon finding same, they must be brought to the station, have the label reversed, and be duly returned to Adolf, c/o Funk Hole, Germany.

Gas bombs must not be used for lighting or heating, as this practice greatly offends the Gas Company.

Invading aircraft must always be tackled with anti-aircraft guns. On no account may darts be used for this purpose, as these are basic necessity for the welfare of the country, and must be strictly regarded as such. By Order, Ministry of Dissipation.

—From "The Pumper"

Sweet Young Thing: "What shall I do? I am engaged to a man who just simply cannot bear children."

Kindly Old Lady: "Well, you mustn't expect too much of a husband."

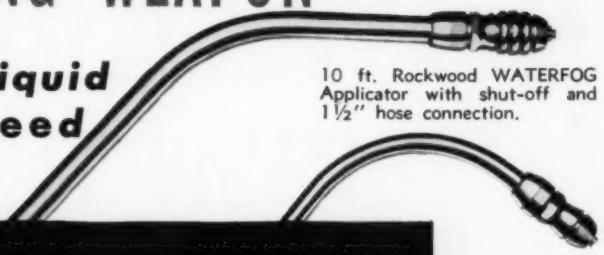
Hard Boiler Captain: "You give me a pain in the neck."

Fireman: "Thanks for moving me up."

"How d'ya like that? I finally get you cornered, then you're saved by the bell!"

NEW FIRE FIGHTING WEAPON

Puts Out Flammable Liquid Fires With Amazing Speed



10 ft. Rockwood WATERFOG Applicator with shut-off and 1½" hose connection.

6 ft. Rockwood WATERFOG Applicator with shut-off and 1" hose connection.

1 Gasoline fire at full intensity before fireman moves in to extinguish it with WATERFOG discharged from a 6 ft. Rockwood Applicator.

2 WATERFOG protects fireman from flames and heat as it cuts down gasoline fire.

ROCKWOOD WATERFOG APPLICATOR

This new fire fighting weapon gives ordinary water remarkable new extinguishing power. It instantly turns water into ***low velocity*** WATERFOG — a powerful new extinguishing agent that puts out fires so rapidly that it will startle you!

Fires in such flammable liquids as fuel oil, kerosene, mineral spirits and even gasoline in small open containers, can be quickly subdued by WATERFOG discharged from this Rockwood Applicator. WATERFOG is also unusually effective on fires in ordinary combustibles. It also protects firemen from flames, heat and fumes — and it greatly reduces water damage.

Rockwood WATERFOG Applicators are available in two standard sizes — 6 ft. and 10 ft. lengths, with or without shut-offs. The 10 ft. Applicator produces a dense umbrella shape WATERFOG pattern 3 times larger than the pattern produced by our 6 ft. Applicator. See these Applicators at the Boston Conventions of the International and New England Associations of Fire Chiefs. Also see Rockwood's graphic new motion picture (in sound and color) "WATERFOG-Master of Fire".

Sold thru recognized distributors

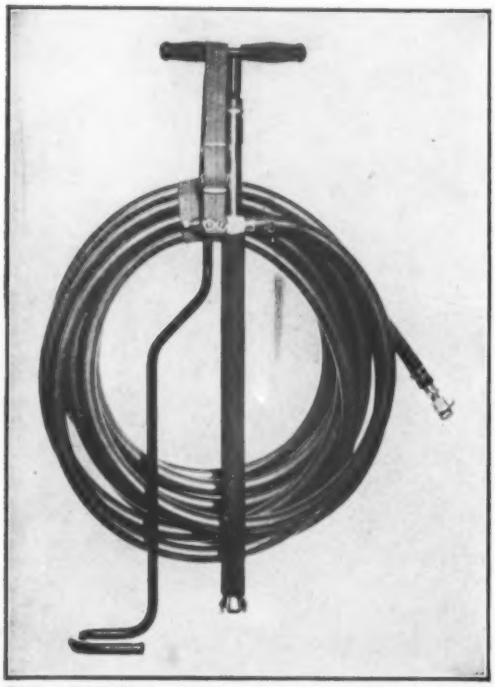
3 and 4 Out in short order. No expensive chemicals were needed. Only a few gallons of water generated into WATERFOG did the job.

ROCKWOOD SPRINKLER COMPANY
54 Harlow Street Worcester, Mass.

NOW AVAILABLE

BRITISH TYPE ARP-33 STIRRUP PUMPS

"The Pump That Saved London"



THE ENGLISH TYPE ARP-33 STIRRUP PUMP

FEATURES:—

1. Patented Push-Button Nozzle—with finger-tip control, changing stream instantaneously, from a solid stream to a spray.
2. Dual acting pump—assuring a continuous stream.
3. No fibre or leather washers to wear out or replace.
4. Tested for 200 lbs. pressure.
5. 30 feet of ½" hose—ample for most requirements.

Don't confuse the ARP-33 with the ordinary agricultural pump; it was designed for fire service and won repute fighting incendiary fires in London.

See the pump, at our Booth No. 3, Fire Chiefs Convention, Boston, August 18 - 22.

Manufactured by the E. C. BROWN CO., Rochester, N. Y.

Distributed by

FIRE DEFENSE & EQUIPMENT BUREAU, Inc.

551 FIFTH AVENUE, NEW YORK CITY

DEMOUNTABLE FOREST FIRE UNIT PROVES ITS WORTH IN SERVICE

Can Be Carried on Any Truck and Is Readily Removed

By E. Reynolds Mosman

FROM the largest township in Massachusetts, the town of Plymouth, which has 106 square miles of territory, largely woodland, comes a unique development in the way of brush and forest fire fighting equipment. It is complete portable forest fighting unit and which can be lowered by chain fall or hoists, in less than a minute, converting any truck into a potent piece of fire-fighting apparatus.

Details of the Equipment

Complete with a steel tank holding 100 gallons of water, a one cylinder air cooled motor, 250 feet of three-quarter inch booster line, twenty feet of suction hose, two shovels, a C.T.C. extinguisher, and an axe, the unit weighs 1,330 pounds (with water tank full) and is forty-one inches long, and twenty-one inches high and twenty-nine inches wide.

Henry Walton, Fire Commissioner and Forest Warden of Plymouth, designed the apparatus. He is now testing the unit by putting it into active service on the fire line.

Allowing Deputy Warden Abbott Raymond to store it in his garage in Manomet, it is ready for instant local use. Hitched to the rafters of Raymond's garage, the unit, which is kept filled with water, can be lowered in less than a minute into Raymond's truck, providing an efficient forest fire truck. With this arrangement, it does not tie up the truck when it is needed for Raymond's ordinary daily duties. Used in recent fires, the truck and unit proved very satisfactory.

The twenty-foot suction hose and strainer enables the operator to refill the uint from any pond, cistern, or stream having three or more inches of water. The pump is capable of sustaining sixty pounds pressure, and the tank provides a stream of water for fifteen minutes. The booster line is equipped with a fog nozzle with one-quarter inch tip. The tank is made of one-quarter inch non-rusting steel plate.

Apparatus Placed in Truck Ready for Service

Exhibitors at I.A.F.C. Conference

A record-breaking number of exhibitors have been secured by Chief D. B. Tierney, Chairman of Exhibits, for the Boston conference of the International Association of Fire Chiefs, to be held on August 19-22. All told, fifty-eight companies will be represented in the huge display. The list to date follows:

Seagrave Corporation, Columbus, Ohio.
Hayes Pump & Machine Co., 125 Purchase St., Boston, Mass.
Buffalo Fire Appliance Corp., 44 Central Ave., Buffalo, N. Y.
American - LaFrance Foamite Corp., Elmira, N. Y.
Mack Motor Truck Co., Long Island City, N. Y.
Carpenter Mfg. Co., 179 Sidney St., Cambridge, Mass.
Maxim Motor Co., Middleboro, Mass.
Farrar Co., Woodville, Mass.
Altas Fire Equipment Co., Inc., 22 Warren St., New York, N. Y.
Eureka Fire Hose Co., 1790 Broadway, New York, N. Y.
Blanchard Associates, Inc., 25 Hampshire St., Cambridge, Mass.
Mine Safety Appliances Co., Pittsburgh, Pa.
Midwestern Mfg. Co., Mackinaw, Ill.
D. B. Smith, Utica, N. Y.
Fire Engineering, 24 West 40th St., New York, N. Y.
Akron Brass Co., Wooster, Ohio.
Boston Coupling Co., 297 Congress St., Boston, Mass.
Gorham Fire Equipment Co., 136 Broad St., Boston, Mass.
Dr. Wallace W. Robinson-American Standard Tourniquet Co., Portland, Maine.
American Fire Equipment Co., 45 Broad St., Boston, Mass.
Harry Lovell, 109 Brookline Ave., Boston, Mass.
E. & J. Resuscitator & Inhalator Co., Glendale, Cal.
Superior Fire Equipment Co., 72 Park Place, New York, N. Y.
Justin A. McCarthy Co., 176 Federal St., Boston, Mass.
Ellis Fire Appliance Co., 79 Cambridge St., Boston, Mass.
Homelite Corp., Port Chester, N. Y.
J. H. Emerson Co., 22 Cottage Park Ave., Cambridge, Mass.
Atwood, Marston & Co., Inc., 80 Federal St., Boston.
American District Telegraph Co., 155 Sixth Ave., New York, N. Y.
Elkhart Brass Mfg. Co., Elkhart, Indiana.
Lux Fire Equipment Co., 626 Park Sq. Bldg., Boston, Mass.
The C. G. Braxmar Co., Inc., 242 West 55th St., New York, N. Y.
Dayton Fire Equipment Co., Dayton, Ohio.
Circul-Air Corp., Jackson, Mich.
Pyrene Mfg. Co., 560 Belmont Ave., Newark, N. J.
C-o-Two Fire Equipment Co., 10 Empire St., Newark, N. J.
The Gamewell Co., Newton Upper Falls, Mass.
Rockwood Sprinkler Co., Worcester, Mass.
McIntire Brass Works (Andrew J. Morse), 211 High St., Boston, Mass.
E. C. Brown Co., Rochester, N. Y.
Donohue & Riordan, 182 Dudley St., Roxbury, Mass.
Morning Pride Co., Dayton, Ohio.
Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass.
Quaker Rubber Co., Philadelphia, Pa.
National Foundry & Machine Co., Inc., Central Falls, R. I.
DuGas Engineering Corp., Boston, Mass.
Norwalk Tire & Battery Co., Boston, Mass.
Lange Tractor and Equipment Co., Duluth, Minn.
Timothy Stillman, Boston, Mass.
Buckeye Iron & Brass Works, Dayton, Ohio.
Wooster Brass Co., Wooster, Ohio.
Kerotest Mfg. Co., 2525 Liberty Ave., Pittsburgh, Pa.
Thos. A. Edison, Inc., (Medical Gas Div.), 110 Arlington St., Boston, Mass.
The American City, 470 Fourth Ave., New York City.
Boston Janitors Supply Co., 115-117 West Brookline St., Boston.
E. & E. Mfg. Co., 2970 West Grand Blvd., Detroit, Mich.
American Marsh Pumps, Inc., Battle Creek, Mich.
Fog Nozzle Co., 1520 E. Slauson Ave., Los Angeles, Calif.
Sirenos Co., Teaneck, N. J.

John K. Howard Dies

John Kay Howard, Vice-President and Treasurer of the F. A. E. Corporation died recently, less than an hour after he had been admitted to the Syracuse General Hospital. He was born and lived all his life in Syracuse.

Mr. Howard was previously connected with the Sanford Motor Truck Company and with the American-LaFrance-Foamite Corporation. He was a member of the Onondaga County Volunteer Firemen's Association and of the International Association of Fire Chiefs.

Surviving are his wife, Mrs. Dorcas Sharlotte Howard; a son, Donald J. Howard; a daughter, Marion E. Howard and a grandson, Donald K. Howard.

Deasy Appointed Chief State Fire Instructor

Governor Lehman, of New York, realizing the perilous and uncertain situation that exists in relation to fire defense, has appointed a committee with Seth T. Cole as chairman and Lieutenant-Governor Poletti as director and general supervisor of the education activities. In conjunction with the State Board of Education, a program has been set up whereby a corps of fire officers will appear before various firemanic units (especially volunteers) to carry on an educational program to enable all firemen of the state to better cope with fires when and if they occur. This is the first indication that firemanic education is being universally recognized as a public necessity. Heretofore progressive public-minded individuals and organizations have carried out this training through the conduction of county schools similar to those in Greene, Columbia and Ulster Counties.

Retired Battalion Chief James J. Deasy, the instructor in the above schools, has been tentatively appointed as Chief State Instructor to carry on the work of training the staff of instructors who will travel throughout the state.

The staff of instructors are now being assembled and within a short time the training activities will be under way with the staff out in the field. In addition to instruction in fire department practices, the curriculum will include intensive instruction in the handing and extinguishment of incendiary bombs. Accompanying certain lectures in the work outlined, there will be motion pictures of various fire department operations and views of prominent fires of recent history.

A Little History on Newport

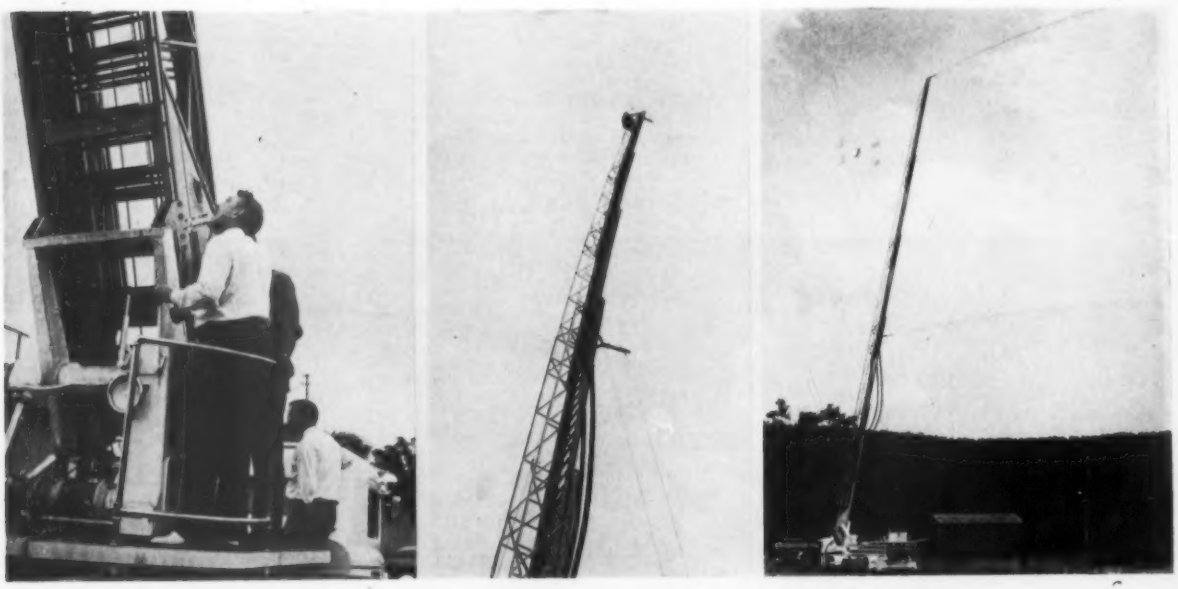
Forty years ago, fires in Newport, Vt., were extinguished through the use of an old hand pump, the water being drawn from Lake Memphremagog and rivers. Later this source of supply was replaced with an efficient water system.

In the past fifteen years, $25,000 has been expended in the building of a brick central fire station which houses four pieces of motor fire apparatus and modern fire fighting equipment. The volunteer department is made up of forty men, two assistant engineers and a Chief. It is the only department in Vermont that has four trained divers.

E. F. HUMPHREY
Chief, Newport Fire Department

The Old Hand Pump Used in Newport, Vt., Forty Years Ago

The men supplying the motive power are as follows: One the left side of the pump, left to right, H. H. Green, late Fire Chief of Newport, H. C. Humphrey, John Enos and Horace Welch; on the right side of the pump, left to right, Ed Baker, Archibald Wells (living), Walter Belding (living), and Carroll Huntington (living).



Boston To Get the First 125-Foot Aerial Ladder.

The above illustrations show the new 125-foot aerial ladder built for Boston, Mass., being demonstrated at the American-LaFrance plant at Elmira, N. Y. At the left, Chief Samuel Pope is operating the mechanism controlling the ladder; Center, Chief Pope at the top of the ladder, which is fully extended. Incidentally, he is the first Fire Chief to climb a 125-foot aerial in this country; Right, aerial ladder extended with a 1¾-inch tip in operation at the top and a 2-inch tip in operation at the center. This truck is the first 125-foot aerial ladder placed in service in this country. As noted previously, it goes to the Boston Fire Department, of which William Arthur Reilly is Commissioner.

MANHATTAN MAKES *arteries* FOR AIRCRAFT

—— *arteries that do not harden in desert heat or stratosphere cold*

BACK of throttle and pedal and instrument panel, a maze of hose made of oil- and gasoline-proof synthetic materials, leads out to wing flap and propeller blade, to rudder and landing gear, to gas line and bomb door, to vital mechanisms that must give instant response to controls.

In them flow the fluids for flying—and landing.

No simple tubing—these arteries that must and *do* stand up to rapid vibrations and extreme pulsations of pressure; to hot engine oil on the inside, sub-zero cold on the outside; to sudden and terrific alternations of stresses and temperatures.

That kind of stamina is an achievement of protracted, progressive and intense research.

But ships must land as well as fly—and then *stop*—quickly, smoothly.

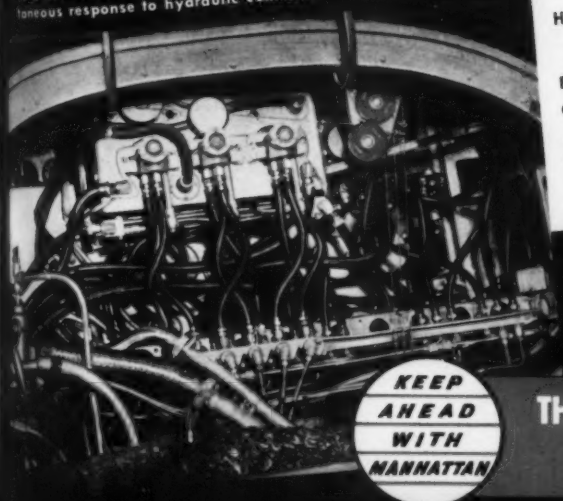
For this vital need, MANHATTAN developed light, high-friction asbestos brake linings for all types of ships from light pursuit to giant bombers and airliners.

Many other highly specialized developments in natural and synthetic rubber are imperative to the aviation needs of the Defense Program, to which MANHATTAN'S resources, manpower and fifty years' experience are dedicated.

MANHATTAN PRODUCTS
for the Aviation Industry Include:

- Hose for Fuel and Oil Lines and Hydraulic Controls
- Brake Linings
- Clutch Facings for Accessories
- Air, Welding & Paint Spray Hose
- Brake Cylinder Cups
- Hydraulic Packings
- Vibration Dampeners
- Molded Parts and Gaskets
- Radio Shielding Tubing
- Abrasive Wheels
- Non-slip Matting
- Transmission Belts
- Conveyor Belts

Behind the instrument panel—Hose developed by Manhattan and The Weatherhead Company engineers assures instantaneous response to hydraulic controls.



KEEP AHEAD WITH MANHATTAN

THE MANHATTAN RUBBER MANUFACTURING DIVISION
of RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES and FACTORIES . . . PASSAIC, NEW JERSEY

Fyr-Fyter

AND

NATIONAL DEFENSE

The Fyr-Fyter Company is cooperating 100% with The National Defense Program by devoting better than 70% of its large, modern factory and our skilled workers to aid our Government, as well as to those thousands of industrial concerns and others who are working day and night on National Defense contracts.

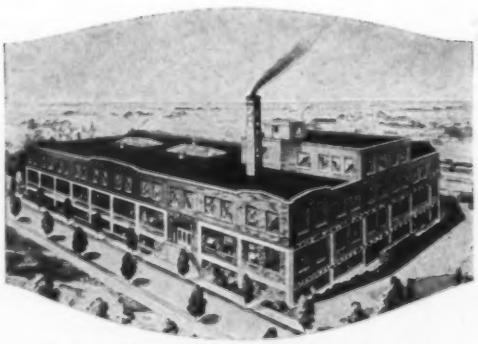
We have added many new workers and have installed thousands of dollars worth of modern machinery and other equipment in order to speed up production.

FIRE! PUBLIC ENEMY No. 1

Today FIRE is recognized as Public Enemy No. 1 in our National Defense Program. A serious fire can slow up National Defense production quicker than any other known cause. We believe that helping to make factories, shops, warehouses, transportation companies, and other industries safe from fire is one of the greatest and most important things to consider today. Our trained fire protection men will gladly inspect your property and hand you a report on the survey. This is a free service offered by our company.

ESTABLISHED 25 YEARS

This year we are celebrating our twenty-fifth Silver Business Anniversary. Twenty-five years of research and manufacturing new and better fire extinguishing devices.



THE FYR-FYTER FACTORY, DAYTON, O.

FIRE STOPS PRODUCTION

A serious fire in one single factory which may be producing parts for airplanes, guns, army trucks, etc., may stop production in many other factories working on National Defense contracts.

THE FYR-FYTER CO., DAYTON, O.

R. C. IDDINGS, PRESIDENT AND GENERAL MANAGER

Manufacturers' Announcements

Waterproof Clothing Catalog Issued

The Goodall Rubber Company, manufacturers of Industrial Rubber Products, have just released their new catalog covering safety, sporting and regular boots; service coats and work suits; rubber and oiled clothing, aprons, hats; rubber blankets and gloves.

In all, 150 styles are described and 54 are illustrated. Many are new items in the market. A copy of the catalog can be obtained by writing to the Goodall Rubber Company, Philadelphia, Pa.

New Dayton Catalog

The Dayton Fire Equipment Company, 1242 W. Second Street, Dayton, Ohio, has recently issued a new catalog—Edition 41, Silver Anniversary Number—covering a wide range of fire fighting appliances and supplies of practically every nature. Included are listings and descriptions of the well-known Dayton Power-Draulic Coupling Expander and Hose Tester, various types of fog, vapor and other nozzles, life nets, thawing equipment, ladders, extinguishers, lights, wearing apparel, badges, sirens, etc. Attractively gotten up, and printed on good paper, it is a catalog every fire chief and other buyer of fire equipment should have. The Dayton Company is headed by Wm. P. Schleinitz, who has been in the fire equipment business for the past twenty-five years or more and is well known in fire circles throughout the country.

Fog-Producing Tip

A new device for making water-fog for fire fighting purposes has been introduced by Mul-T-Jet Nozzle Co., 11 W. 42nd Street, New York, N. Y., a newcomer to the field of fire apparatus and equipment manufacturers.

Mul-T-Jet is not a nozzle nor is it designed to do more than produce water in such fine particles that it approximates Nature's own fog. It is a new type of tip which threads onto any standard shut-off pipe and so mixes, or atomizes the water stream that a full pattern of fog is developed.

Mul-T-Jet produces fog without excessive hose stream pressures. This makes easy the application or removal of Mul-T-Jet from the pipe and the substitution of the desired tip where any straight stream is wanted. It is made entirely of plastics.

It is claimed for Mul-T-Jet that it has no moving parts; it will not fracture or break under high pressures or rough handling; it is light, easy to keep clean; is compact—in fact, can easily be carried in a turnout—pocket. Furthermore, it will not tarnish or corrode and it is not susceptible to chemicals. Also it is a non-conductor.

Made of plastics, Mul-T-Jet Fogmaker does not come within any defense priorities limitations.

Showing Application of Mul-T-Jet to Shut-Off Nozzle.

New Truck for Ventnor City

The Ventnor City, N. J., Fire Department recently received a new fire truck designed by Chief David G. Stuart. The chassis used is of two-ton size. The pump is a 500 G. P. M. (at 120 pounds pressure) two-stage centrifugal.

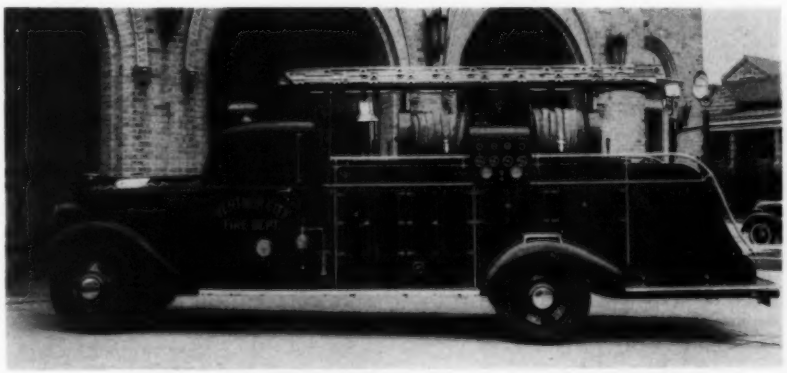
The truck carries a 400-gallon water tank on top of which are four mechanized reels. Three of these are piped for 1½-inch hose and one for 1-inch booster line. Each reel carries 150 feet of hose, but could handle 100 feet more. Additional hose is carried in the side locker. All four lines are equipped with fog nozzles.

A larger rear reel, also mechanized, carries 500 feet of 2½-inch standard hose.

The lockers carry a complete set of first aid fire equipment such as 2½-gallon extinguishers, 15-pound carbon dioxide tanks, smoke masks, first aid kits, salvage covers, 2½-inch nozzles, hand lamps and ropes, etc. The axes and pinch bar are carried on the side of the rear step. The ladders are aluminum, one 20-foot extension and one 12-foot roof ladder.

There is a two-way radio which keeps the apparatus in touch with headquarters.

The machine has been in service for more than seven months and has proved more than satisfactory.



Fire Truck Recently Put Into Service in Ventnor City

Explosion Burns Ten Firemen

Seventeen men, including ten firemen, were burned when a petroleum gas compressor exploded in a Baltimore, Md., refinery July 26. Engine 57 responded to a phone call at 3:59 P. M., to the Continental Oil Co. at Fairfield. Three alarms were sounded at short intervals.

While foam was being applied to a petroleum gas compressor and piping, the compressor exploded and caught the seventeen men. Lieut. Dorsey had the presence of mind to roll in the thick covering of foam on the ground and lessened the severity of his burns. Three more alarms were then sounded, bringing a total of 30 fire companies to the plant. This number included twenty-two engines, four trucks, two chemical and two boats.

The fire destroyed the one story brick and steel gas compressor house. Authorities were unable to ascertain the cause of the fire; it was reported that the compressor exploded when piping jammed.

Otis Smith.

Bulletin Issued by Boston Auxiliary

The first number of a monthly bulletin entitled "The Boston Fire Department Auxiliary News," has been issued by the Auxiliary Association of the Boston Fire Department.

This first issue contains news of interest to auxixliary firemen, and accounts of fires in which they have assisted.

Therein is stated that through the efforts of Fire Commissioner William Arthur Reilly, the auxiliaries have secured the old quarters of Engine 13 as their headquarters.

To Investigate Chicago Fires—Fire Commissioner Michael J. Corrigan has ordered department investigators to make thorough investigations of all extra alarm fires during the past month. In issuing the order, Commissioner Corrigan said there were sixteen extra alarm fires in June and as many more during the present month.

New Aerial for Mobile Fire Department

A new aerial truck was placed in operation last month at Mobile, Ala., replacing a 20-year old model which had outgrow its usefulness. The 100-foot all-steel ladder hydraulically operated, will enable Mobile firemen to reach the top of all existing buildings in the downtown area, with the exception of three office structures. It will be housed at the Matt Sloan station for service only in the business area. This is the latest step in modernizing Mobile's fire department, which now boasts of a personell of ninety-two, the largest in the city's 230 years' existence. In the illustration, the city's three commissioners and Acting Fire Chief L. L. Petrey are shown standing by the side of the new LaFrance aerial. They are (left to right) Commissioner Ernest M. Megginson, Mayor Cecil F. Bates, Fire Commissioner Charles A. Baumhauer and Chief Petarey. Aboard the truck are the select crew of ten which were chosen to work the new piece of equipment.

New American-LaFrance Aerial Recently Put in Service in Mobile, Ala.

British Firemen to Attend Dominion Conference

District Officer Daniel Ivall of the London, England, Fire Brigade and Auxiliary firemen Braybrook and Palmer will be the guests of the Dominion Association of Fire Chiefs at its annual conference in Peterborough, Ontario, on August 26 through 29. They will address the members of the Association and show recent motion pictures depicting the problems and work of the British fire fighters.

Eastern Regulars Plan Trip to to I. A. F. C. Conference

Once again the Eastern Regulars, under the direction of Chief James T. Keegan, Salvage Corps, 227 Washington Street, Newark, N. J., have sponsored an official trip to the Annual Conference of the International Association of Fire Chiefs which is to be held in Boston, August 19 to 23.

Arrangements have been made with the New York, New Haven and Hartford Railroad to assign for the use of the group streamlined air-conditioned coaches between New York and Boston, and, in addition, a recreation car.

The schedule of the trip is as follows:

Going—Sunday, August 17, 1941

Leave New York (Pennsylvania Station), 2:00 P.M. DST

Due Boston (South Station), 6:55 P.M. DST

Transfer to Hotel Statler—Dinner at 8.00 P.M. DST

Returning—Friday, August 22, 1941

Leave Boston, 3:00 P.M. DST.

Due New York (Pennsylvania Station), 7:55 P.M. DST

On arrival at Boston, transfer is provided from the station to the hotel and return, and in addition, a get-together dinner will be served at the Hotel Statler at 8:00 P.M. DST.

The entire charge for round trip transportation between New York and Boston, transfer between stations and hotel, and dinner the evening of August 17, will be $12.45.

Britain Fire Forces Nationalized

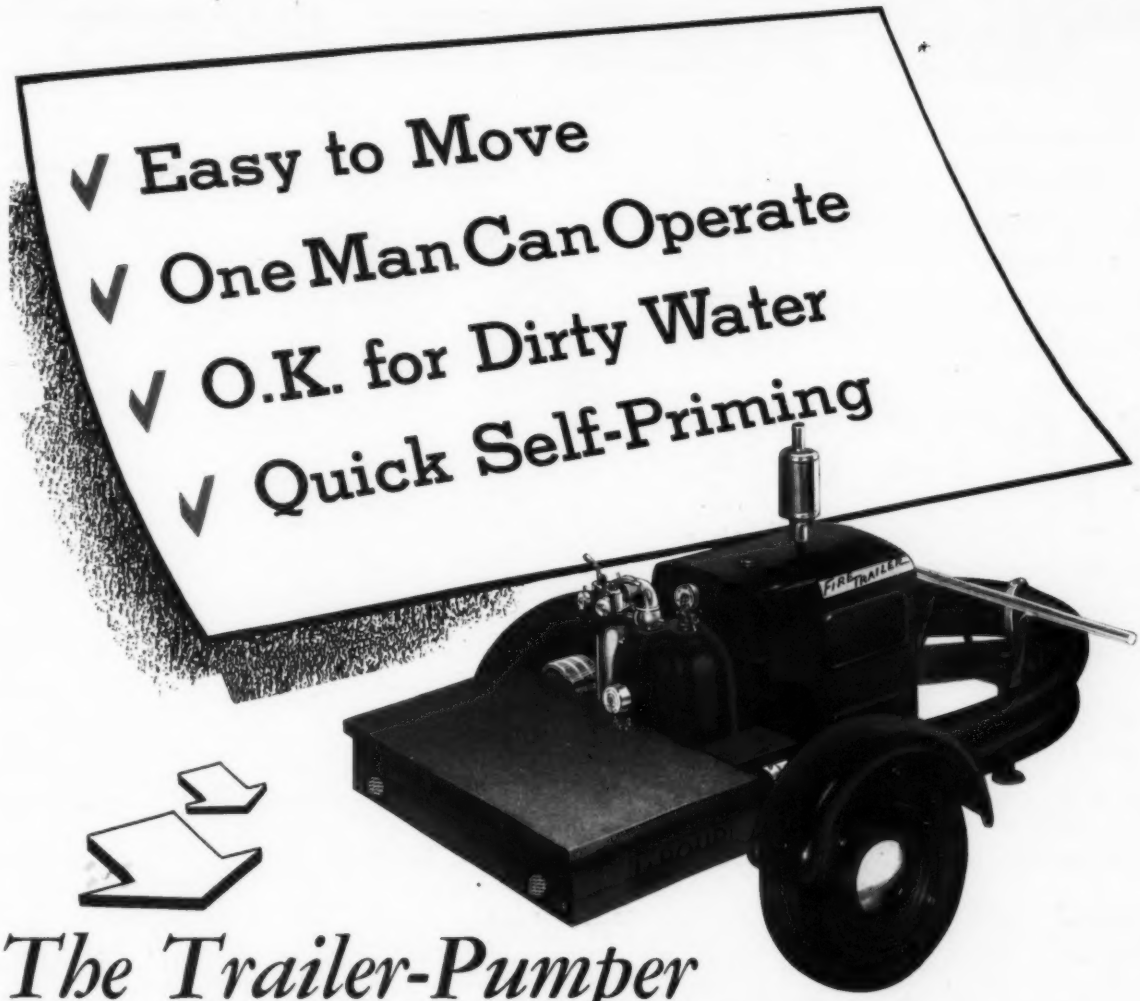
Fire defense in Great Britain has passed from the partial responsibility of several hundreds of local governing authorities to the sole responsibility of the State for the duration of the war at least. The Auxiliary Fire Service, as a separate entity, has ceased to exist. Its personnel is now merged with the regular personnel; 8,000 of its part-time members, between the ages of 25 and 36, has been placed on a full-time basis; and large numbers of recruits are being drafted to it under the National Service Act, as the result of the passing of the Fire Services Bill in May of this year, according to "Fire," the journal of the British Fire Service. The present national fire fighting force totals about 300,000 trained men, and the government has provided it with over 25,000 fire engines of all sizes.

Railroad Installs Trailer Pump

The Boston and Maine Railroad has put into service a 500 gallons-per-minute trailer pump which will be a part of the bomb and fire defense unit now being built by the Boston and Maine Railroad. The unit will be available, on call to the Boston and Maine (for use as auxiliary equipment in the case of hostilities), by any fire department located on B. and M. lines. Two of these portable pumps, from each of which six hose lines can be operated at one time, will be a part of each Bomb and Fire Defense Car the equipment of which will also include shovels for thermite bombs, steel helmets for the crew and other fire and bomb defense material. The pump's gasoline driven engine is started in the same manner as an ordinary automobile and it can draw its water supply from hydrant, well, river or other body of water.

The trailer pump was built by the Maxim Motor Company, Middleboro, Mass.

Trailer Pump Built for Boston and Maine R.R.



The Trailer-Pumper that Fits DEFENSE NEEDS

When littered streets make movement of large, heavy vehicles impossible, when man-power is limited, when the only available water supply is dirty with abrasive mud—in short, when fire must be fought under difficulties such as follow air raids or other disaster—then you will appreciate the qualities and features which make up the LaBour Fire Trailer.

It can be drawn to the fire by any passenger car—without special previous preparation. One man can move it about by hand on hard smooth ground, two men can move it almost anywhere. Pressure and volume characteristics have been created to permit one man to hold the nozzle and direct the fire fighting stream, and two such lines can be operated simultaneously if another man is available.

Carries its own suction and discharge hose, as well as the engine and the powerful self-priming LaBour Centrifugal Pump which requires no attention and will re-prime instantly should prime ever be lost. A real piece of fire fighting equipment, built to do a difficult job and do it well. For details, ask for your free copy of Bulletin 49.

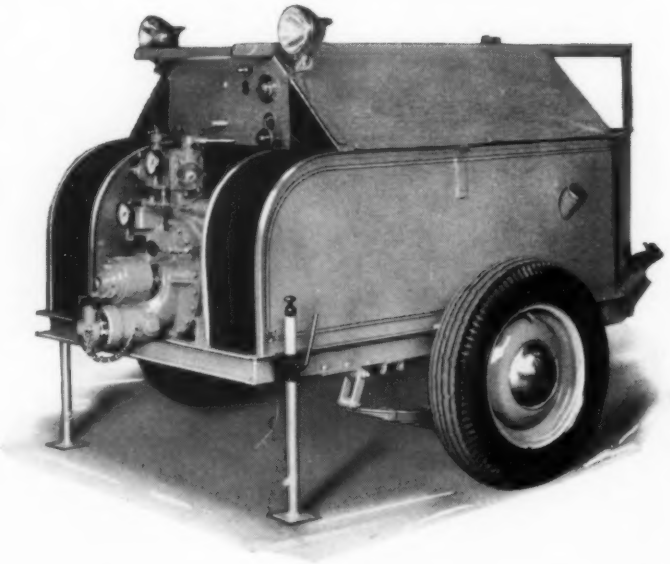
THE LABOUR COMPANY, INC.

1579 Sterling Ave., Elkhart, Indiana

LABOUR FIRE TRAILER

CHAMPION TRAILER FIRE ENGINES

Underwriter Capacity **500 GPM**
Actual Capacity at Suction **600 GPM**
Actual Capacity From Hydrant **800 GPM**



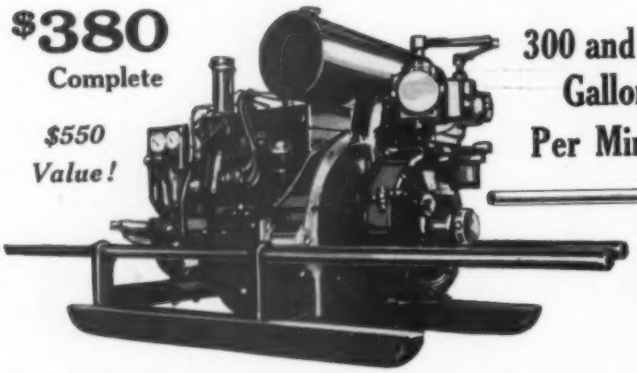
$1075 Complete F500 Pump 85 H. P. V8 Motor

DEPENDABLE and EFFECTIVE FIRE PROTECTION WITH A MINIMUM INVESTMENT

Portable Fire Pumpers

$380 Complete

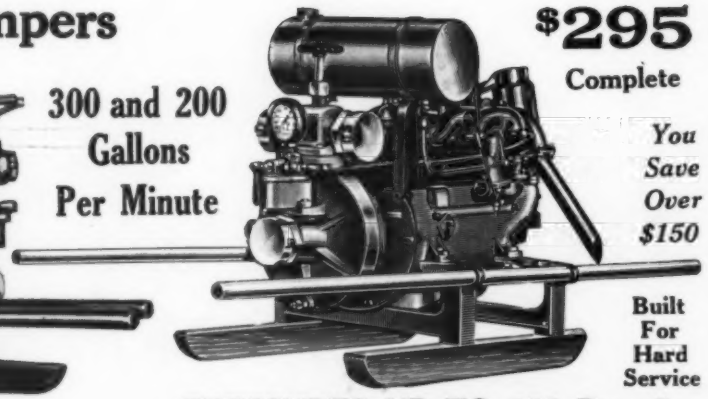
$550 Value!



300 and 200 Gallons Per Minute

$295 Complete

You Save Over $150



Built For Hard Service

PRESSURES UP TO 200 Pounds

No. E768. 300 Gallon Champion Portable Fire Pumper. 30 Horse Power Engine. 2 Gallon fuel tank. Two 2½ inch Quick Action Quarter Turn Discharge Valves with caps. 2½ inch Suction Inlet with cap. Foot valve strainer. Complete.....$380

No. E767. 200 Gallon Champion Portable Fire Pumper. 20 Horse Power Engine. 2 Gallon fuel tank. Two 1½ inch discharge outlets controlled by single valve. 2 inch Suction Inlet. Caps. Foot valve strainer. Complete.....$295

Suction Hose, 10 ft. length, with couplings, 2½ inch, $16.90; 2 inch, $14.00

ELECTRIC ALARM SIRENS for CIVIL and MILITARY SIGNALS

½ H. P. to 7½ H. P. $34.90 to $325

WRITE For Catalog of Fire Apparatus, Fire Pumps and All Fire Equipment

W. S. DARLEY & Co.

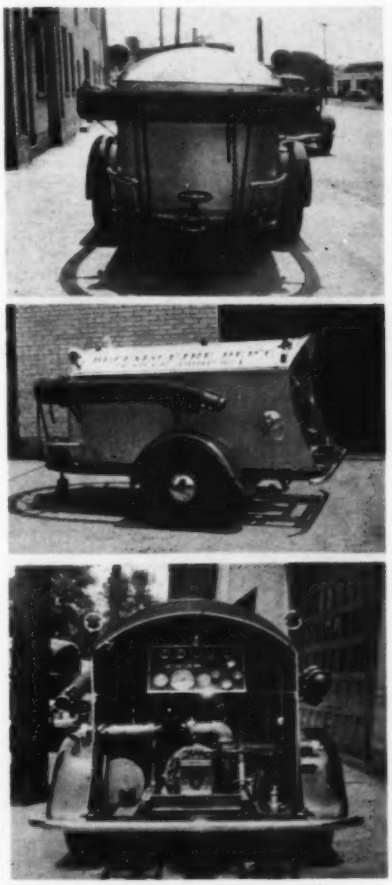
Established 1908 **Chicago**

Kindly mention FIRE ENGINEERING *when writing advertisers*

Trailer Pump for Buffalo

The Buffalo, N. Y., Fire Department has recently acquired a trailer pump which was designed by Master Mechanic G. A. Leo.

The pump, which is powered by a six-cylinder motor directly connected to a 250 G. P. M. single state centrifugal pump with an electrically driven gear pump as a primer, has worked approximately 100 hours on salvage work.



Three Views of the Buffalo Trailer Pump

Top: Front view showing coupling. Center: Side view, showing placement of suction hose. Bottom: Rear view into body, showing panel board and pump.

From two different tests the following information is available on its performance:

400 G. P. M. with open butt for salvage work.

170 G. P. M. with 1-inch tip and 65 pounds pump pressure.

Concord Firemen Celebrate 100th Anniversary

Engine Company No. 7 of the Concord, N. H., Fire Department recently observed its one hundredth anniversary.

The ceremonies were marked by speeches by the Governor and one of the United States Senators and a twelve-hour sports program which included fire fighting evolutions and demonstrations.

The evolution of fire fighting over the 100-year period was portrayed when the sounding of a century-old gong called the leather bucket brigade to put out an actual fire. The original hand tub, used by the company, followed with its exhibition and was followed in turn by every type of apparatus used up to the present day.

Broadcasts Help Decrease Fires

In Rochester, Minn., after every fire in a building, Chief C. E. Ginther broadcasts from the local radio station the name of the owner or tenant, with a description of the cause of the fire and measures which might have been taken to prevent it. There are not so many fires in Rochester as there used to be before this practice was started.

CONSTRUCTION SAFETY

Oswego County Firemen Meet

The Oswego County Volunteer Firemen's Association met in Mexico, New York, recently after a lapse of over twenty-five years. The convention promises to become an annual affair again.

The morning session included an interesting talk by the Rev. McIntire, Chaplain of the New York State Firemen's Association and a paper by Chief Rogers of Potsdam, who told of the benefits derived from belonging to the state association.

The afternoon session was opened with a colorful parade, prizes being awarded to various companies. Prize winners included the fire departments of Pulaski, Sandy Creek and Central Square.

Following the parade various hose races were held, as well as a water fight, which was won by the Mexico Fire Department.

It is planned to organize this association for mutual aid and also for the purpose of taking some action along defense lines.

Ten towns in the county were represented.

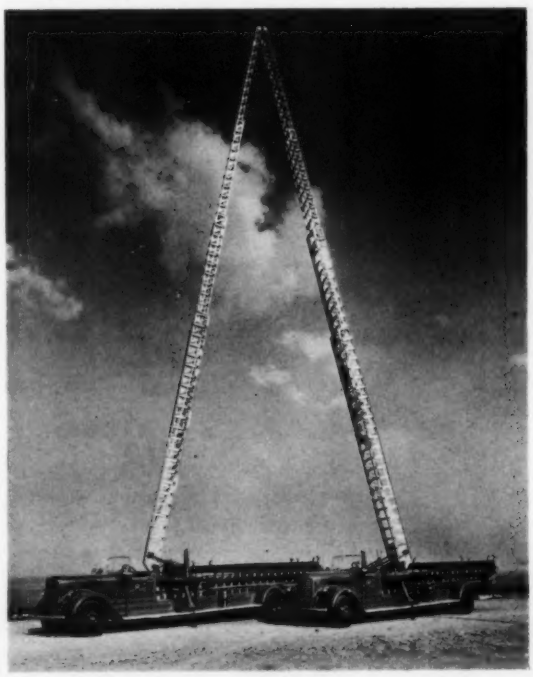
James R. Jackson

Magistrates in New York City were busy following July 4 fining illicit fireworks sellers, three being fined $25 each in Washington Heights Court, two getting $50 fines (one for throwing fire crackers) in Yorkville and several others feeling ire of aroused magistrate in Brownsville and other sections of Brooklyn. Other communities throughout New York State enforced the "no fireworks" law.

Brings Greetings from Shanghai Brigade

Executive Officer C. C. Caynes of the Shanghai, China, Fire Brigade, who is on vacation in the United States brings greetings from the Chief Officer, Captain H. G. Reed, and officers of the Brigade to fire chiefs of the United States. Officer Caynes expects to visit a number of fire departments in this country before he returns to Shanghai.

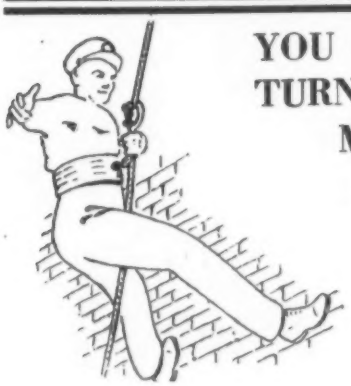
Fourth Officer C. G. Caynes



Pirsch Aerials Delivered to Rio de Janeiro, Brazil

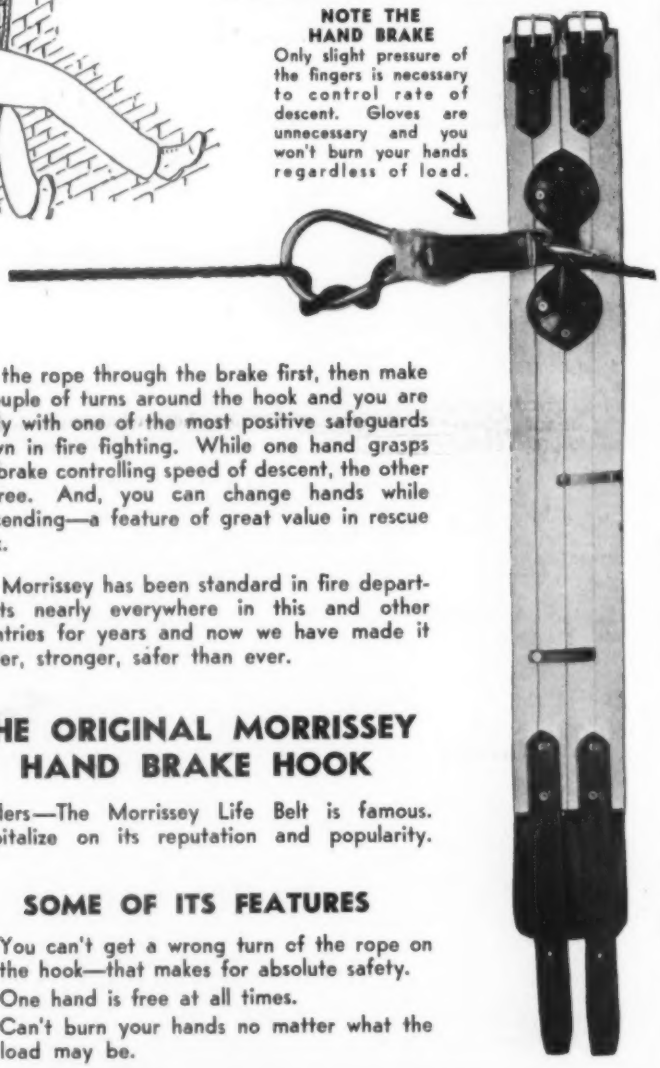
These aerials are equipped with the Pirsch Hydro-Mechanical hoist with eighty-five-foot aluminum alloy ladders, and with 250 feet of aluminum ground ladders on each truck. They were delivered to the fire department of Rio de Janeiro, Brazil, recently.

THE MORRISSEY
LIFE BELT AND HOOK
IMPROVED!



YOU CAN'T GET A WRONG TURN OF A ROPE ON A MORRISSEY HOOK

NOTE THE HAND BRAKE
Only slight pressure of the fingers is necessary to control rate of descent. Gloves are unnecessary and you won't burn your hands regardless of load.



Run the rope through the brake first, then make a couple of turns around the hook and you are ready with one of the most positive safeguards known in fire fighting. While one hand grasps the brake controlling speed of descent, the other is free. And, you can change hands while descending—a feature of great value in rescue work.

The Morrissey has been standard in fire departments nearly everywhere in this and other countries for years and now we have made it better, stronger, safer than ever.

THE ORIGINAL MORRISSEY HAND BRAKE HOOK

Dealers—The Morrissey Life Belt is famous. Capitalize on its reputation and popularity.

SOME OF ITS FEATURES

- You can't get a wrong turn of the rope on the hook—that makes for absolute safety.
- One hand is free at all times.
- Can't burn your hands no matter what the load may be.

Made only by

THE MORRISSEY MFG. CO.

316 STATE TOWER BUILDING - SYRACUSE, N. Y.

Back Draft Injures Firemen

The New York Fire Department had its Fourth of July fire works demonstration in the early hours of the Fifth with the loss of one of its members. The fire occurred in a six-story non-fireproof building at 200 Broadway, Manhattan, which was tenanted by a sporting goods store on the ground floor. The other floors were unoccupied. The only protection against fire was a dry sprinkling system in the cellar and sub-cellar.

The first alarm was received at 4:35 a.m. from Box 71. Deputy Chief Hanley of the First Division rolled in on the box and ordered the first alarm companies to stretch in. When the first floor doors were opened by Trucks 10 and 1, there was a burst of fire that crossed Broadway and mowed down at least thirty officers and men of the department and the Fire Patrol. Chief Hanley, seriously burned from the blast, ordered a second and third alarm at 4:51 and 4:52 a.m. Assistant Chief of Department, John J. McCarthy responded and ordered a fourth at 5:05 a.m. Commissioner Patrick Walsh responded and as Acting Chief of Department took command.

The fire was declared under control at 6:14 a.m., but water was still being poured into the structure that afternoon. Flames through the roof went up the adjoining building and went in on all floors but did slight damage as Chief McCarthy, foreseeing the danger, was prepared on each floor with sufficient streams to hold it. A forty foot excavation to the north of the burning building was a handicap to the truck companies in opening the metal shutters, and it was while Truck 8, a third alarm company, was engaged in this duty that one of their members was observed on the upper floor working with a claw tool. He was later found dead in the rear of the ground floor. The different injuries required five ambulances in addition to the department mobile hospital.

Twenty engine companies, five truck companies, three water towers, 1 rescue company, four insurance patrols, six chief officers and twenty-five company officers and 135 firemen responded to the various alarms.

GORDON R. MULLINS.

Chief Otterson Honored

On June 13, Fire Chief C. F. Otterson, of the Napa, Calif., Fire Department, was honored on the occasion of his thirty-fifth year as Fire Chief. Friends of the Chief were on hand for the occasion which started with a tree planting ceremony at which a tall redwood tree was planted and dedicated to him.

During the banquet which followed, the Chief's history with the city was presented from the days when he took office and disbanded the old volunteer department and went to work with an old steamer, to the time later on when he procured one of the first motor-driven engines in the country, up to the present with the modern and efficient equipment the city now has.

Chief Otterson is known throughout the United States as the first man to build a water carrying fire engine.

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of July, 1941. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are approximately correct view of the losses incurred. The figures represent losses in thousands of dollars.

Month Ending July 31	Loss in Thousands of Dollars
Evansville, Ind.—Atlas Laundry damaged..	50
Fort Smith, Ark.—Property of Griffin Wholesale Grocery Co.	50
Great Kills, S. I., N. Y.—Richmond Yacht Clubhouse, adj. property	65
St. Donat, Que.—Main bldg of Manoir St. Donet	50
Kingsburg, Cal.—Plant of the Kingsburg Cotton Oil Co. destroyed	170
McVeigh, Ky.—No. 7 Commissary of Eastern Coal Corp. destroyed	50
Nashville, Tenn.—Warehouses, trucks and equipment of two motor transport companies	65
Westville, Ind.—Plant of Westville Refinery, Inc., destroyed	50
Minneapolis, Minn.—Alvin Theatre damaged	70
Richmond, .Va.—Brinser's Sons factory, Petersburg Pike	80
Indianapolis, Ind.—Three bldgs. of H. J. Erbrich Food Products Co., adj. property	65
Union City, Tenn.—Reynolds Packing plant damaged	70
Knappton, Wash.—Knappton sawmill, owned by Norton Cowden	80
Saratoga, Cal.—Mason winery destroyed....	170
Atlanta, Ga.—Barns of Upchurch Packing Co. destroyed	50
Syracuse, Ill.—Townsend building and adj. property	50
St. Joseph, Mo.—Cattle pens at stockyards	50
Manchester, N. H.—Hubbard Sash & Door Co. destroyed	50
Oakfield, N. Y.—Whse. of G. W. Haxton & Son, Inc., destroyed	65
Marcola, Ore.—Mill of Fisher Lumber Co., adj. business and residential property....	170
Sterling, Colo.—Whse. of Sticknery Auto Supply Co. damaged	50
Kalispell, Mont.—Unity Refinery damaged..	65
Pontiac, Mich.—Lewis Furniture Corp., adj. property	80
Philadelphia, Pa.—Macaroni factory of Kurtz Bros. destroyed	225
Seminoke, Okla.—Sinclair's No. 12 refinery, 1 mile southeast	1,500
Dee, Ore.—25,000,000 feet of logs owned by Oregon Lumber Co. destroyed	50
Portland, Me.—Cold storage plant at Central Wharf, owned by Willard-Dagget Fish Co., damaged	65
Old Orchard Beach, Me.—Amusement area damaged	50
Pembroke, Ont.—Plant of Consolidated Paper Corp. destroyed	250
Mt. Vernon, Wash.—Hamburgh Iron Works destroyed	80
Willits, Cal.—Stock barn and bunk house on C. S. Howard ranch	65
New Haven, Conn.—Brush mfg. plant of Morn Bros. destroyed	50
Belle Mead, N. J.—Barn and equipment of Bloomingdale Dairy Farms destroyed....	50
Louisville, Ky.—Dixie Laundry & Dry Cleaning Co. damaged	60
Cleveland, Ohio—Plant of Rocky River Basket Co. destroyed	65
Hamilton, Ont.—Plant of the Canadian Colortype Co., adj. property	80
Bridgewater, N. S.—Factory of Telfer Crowe Woodworking Co. destroyed	65
Arcola, Ill.—High school building destroyed	200
Prince Frederick, Md.—Prince Frederick Department store, adj. property	170
Benton Harbor, Mich.—Bldg. at House of David Colony	50
Helena, Ark.—Bush bldg., occupied by Pure Oil Co.	50
W. Springfield, Ore.—Business and residential property	50
Decatur, Ind.—Adams County Infirmary damaged	50
Alexandria, La.—Business district damaged	80

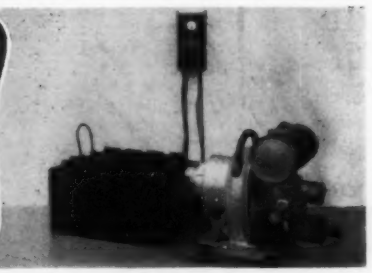
What Every Department is Talking About... RIGHT NOW

There isn't a fire department in the country today that isn't up to the neck in defense preparations. And one piece of equipment that is playing an important part in the program is the Homelite Portable Generator—a handy gasoline-engine-driven power plant that can be just as valuable in war as it is in peace.

Homelite Portable Floodlighting

With an 83-pound, easily-portable Homelite you can operate brilliant floodlighting on fires, demaged buildings or for emergency repair work. Or you can supply hospitals, public buildings, airports and other vital points with emergency electric current during power failures. One man simply carries the unit where needed. No long cables are necessary. It supplies 1800 watts with an automatically controlled voltage of 110.

Homelite Portable Stand-by Power



During power interruptions you can also use your Homelite Portable Generator to operate police or fire signal systems. Or you can use them in telephone offices to charge storage batteries. Or to operate short wave radio sets. Or at airports to operate radio beams. Our complete bulletin shows all the Homelite units available and illustrates the many emergency jobs these handy generators can perform.

HOMELITE
CORPORATION

Send for this bulletin now.

808 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

The BIGGEST of All Man's Constructions C-O-TWO PROTECTED

Over the high lines that stretch along the Columbia to Vancouver then across the river and down into Oregon's Willamette Valley the gigantic voltages of Bonneville must flow uninterruptedly. Two 48,000 K.V.A. generators and one 5,000 K.V.A. below the controlled waters of Bonneville Dam hum under the positive fire protection of C-O-TWO. South, over the high Sierras and past the scorching wastes of the Mojave Desert to Colorado River, Boulder Dam hurls out electric energy. The two 82,500 K.V.A. generators and switch controls are C-O-TWO protected against fire. Two of the world's largest electrical power projects—both C-O-TWO protected.

IT'S SAFER because IT'S FASTER

Without damage to man or materials C-O-TWO will smother a fire in split seconds. Whether it be a fire in the largest generator or in a dip-tank, a blaze in storage rooms where lacquers, enamels and thinners are kept, C-O-TWO and the fastest known extinguishing agent, carbon dioxide, will kill the fire with the least possible delay to production. Lately C-O-TWO has applied carbon dioxide extinguishers to branches of industry that cannot afford a minute shut down.

There is C-O-TWO equipment, large and small, to stop fires in most industries. For more about C-O-TWO write and our engineers will make a survey without obligation, of course. Write today.

One man, one 20 lb. C-O-TWO portable unit smothers a transformer fire.

C-O-TWO
FIRE EQUIPMENT CO.

10 EMPIRE ST., NEWARK, N. J.

C-O-TWO

Sales and Service in the Principal Cities of United States and Canada

Just off the Press!

FIRE STATION DESIGN

A new, well illustrated pamphlet containing a lot of valuable ideas.

If you are planning to build a new fire house, be sure to get a copy. You'll find it very helpful.

75¢ per copy postpaid

CASE - SHEPPERD - MANN PUB. CORP. 24 W. 40th ST. NEW YORK

The Watch Desk

(*Continued from page* 438)

Hot Off the Ticker!

State of Maine's worst sea disaster was caused when 41-foot launch, loaded with picnickers was destroyed by blast, killing 36. . . . When alarm system in Islip (L. I., N. Y.) broke down, laundry was destroyed with $50,000 loss. When siren switch went dud, efforts were made to sound alarm on old fire bell in cupola, but this failed. Sirens on four trucks touring the streets got out some vamps, but laundry was down. . . . The Brothers of H & L 24, New York City F.D. were doing committee work, when "Boots," company mascot Dalmation galloped through rear door, set up awful barking. Investigation disclosed chemical fumes were driving occupants out of nearby building. Men responded—repaired leak in cooling system, praised "Boots." . . . Speaking of hounds, Rex, pooch of Mr. and Mrs. John Plant, also New York City, got dog medal of Humane Assn. for saving lives of his owners and occupants of 4-story building when he discovered fire which was sweeping place, and barked timely warning. . . . Motorists tossing lighted matches or cigarettes from automobiles might be fined $5 to $100 and jailed for as much as 30 days under bill introduced in New Jersey State legislature. . . . Conservation Dept. Airplane Pilot Fred McLain, Fallsburg (N. Y.) observed incipient forest fire. He swooped low over a hotel, cut motor, gave warning and location to workmen who did their stuff. . . . 15-year old John Ballew, Milford (N. H.) is said to be youngest fireman in that state. Grandson of Chief Jeremiah Casey of long line of fire fighting Caseys. . . . In Borger (Tex.) local theatre was damage by fire. Title of the double feature, appropriate or not, on screen at time was "TOO HOT TO HANDLE" and "THE RAINS CAME." . . . 28 firemen including two chiefs, were knocked out by gas escaping from air-conditioning unit and fire in Disinfecting and Exterminating Corp., New York City. . . . Hold everything!—in Birmingham (Ala.) according to unknown contrib', firemen answering alarm found street flooded and water spraying from a truck. They were at the right spot though the city's water-wagon was on fire. . . . In Pittsburg (Cal.) the carnival needed a fire eater. Feller named Bill Star said he could do it. On his first night on the job the 23-year old Tulsa youth was treated for first degree burns of face and throat. . . . Sad case in Mt. Kisco (N. Y.) where Fred Robinson, 65, retired painting contractor, lost his life in fire seeking his wife who had already been saved. . . . In Blakely (Ga.) Ted Whitchard, fourth grade pupil watched fire destroying Blakely high school. *"What do you think about the fire, Ted"* he was asked. *"I guess it's all right"* he said, somewhat sadly," *but our room hasn't caught yet."* . . . It's reported that dynamite was successfully used to halt flames which threatened to destroy lumber town of Marcola (Ore.) though blaze consumed more than million feet of lumber, a mill and other structures. . . . American Magazine prints what it calls an unusual law, in New Orleans (La.) which says *"fire engines must stop for traffic lights even when racing to a fire."* . . .

The Place of Life Nets in Defense Preparedness

The situation today with regard to life hazards in industry is much more aggravated than normally, for many factories are hlied with national defense work and many of them, of questionable structural condition, are crowded with employees.

Increased fires are occurring, and will occur in the future. More fire fighting equipment is needed, as well as improved life saving equipment. In many old factories, once a blaze get under way, it is possible that workers may be trapped on upper floors—trapped beyond the reach of ladders, or perhaps before the department has time to raise ladders.

Specific examples of where life nets may prove particularly valuable follow:

1. There may not be time for a department to raise aerial ladders: In considering the number of old reconditioned factories and the widespread usage of chemicals and inflammables, it is possible that fires on such premises might quickly get under way and trap many workers on upper floors.

2. There may be insufficent ladders: If a building becomes involved with a fast-spreading fire, and with many workers trapped on upper floors, the time factor enters into the picture. If there are not enough ladders to get all to safety, life nets will prove particularly valuable due to the rapidity with which they can get those on upper floors safely to the ground.

3. Inability to place ladders at difficult positions: If there were presented an occason where one or more persons were trapped at the side of a building, which is obstructed by a nearby alleyway, ramp, or like condition, it might be difficult for an aerial ladder to be maneuvered in such space to effect rescue work. Here life nets will serve, since they can be easily put into action in small spaces.

4. Life nets can be used in debris-obstructed streets: This point is mainly to be considered in view of conditions which may be presented during or after an air raid. With buildings shattered and streets littered with debris, it may impossible for an aerial truck or other equipment to get quickly in position. If persons were trapped on upper floors, portable life saving equipment, such as life nets, could be easily brought to the scene of action.

5. Life nets can be folded in halves and quarters, and consequently require little storage space. Thus, it would be very convenient to maintain life nets at various local fire stations, ready to put into use even with the aid of civilians if necessary.

The Awkward Squad

An Irish drillmaster had volunteered to train a group of auxiliary fire guards recently formed so that they would make a creditable appearance in the parade. Try as he would, however, he could not get the boys to make a straight line. In exasperation he shouted: "What's the matter wid yez? Can't ye line up? All of yez fall out and take a look at the line you've made."

MANUFACTURERS OF THE OFFICIAL I.A.F.C. BADGE

LOOK FOR THEM AT OUR CONVENTION EXHIBIT AT BOSTON

BRAXMAR *for* BETTER BADGES

For more than 60 years the name of BRAXMAR has been synonymous with that of good badges.

If you have not had a BRAXMAR, then order your next badge from us. We maintain a staff of highly skilled metal craftsmen for the one purpose of making your badge. We use the finest of metals available. The badge we make for you will be, without question, the best your money can buy.

While you are attending the various business sessions of the I.A.F.C. Convention we would like you to try this little experiment: Count the number of BRAXMAR badges worn by the fire chiefs and captains around you. The great majority will be wearing a quality badge made by BRAXMAR. What further testimonial is necessary?

Whether you want one badge or more, see that you get the most for what you spend. Buy BRAXMAR.

Illustrated Catalog upon request

Office and Factory

C. G. BRAXMAR COMPANY, 242 West 55th Street, New York

BRAXMAR BADGES

New Improved ACME
full-vision
ALL PURPOSE GAS MASK

gives full
PROTECTION
against
ALL GASES
and
SMOKES

ACME protects against *all* gases because it is designed and constructed to absorb all gases, including CO. ACME is built to filter out smokes and fumes 100%. No other gas mask gives the protection against gases and complete protection against SMOKE SUFFOCATION.

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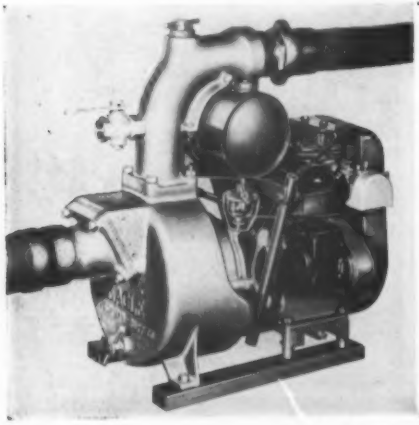

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Southeastern Chiefs Meet in Jacksonville

The annual conference of the Southeastern Association of Fire Chiefs was held in Jacksonville, Fla., on June 15 through 18.

The program, which included a number of papers, was a varied one.

W. H. Palmer, President of the International Association of Fire Chiefs was one of the principal speakers, discussing the national emergency and the program in that connection that has been mapped out by the association.

"Fire Caused by Sabotage" was the subject of a talk by R. G. Danner of Miami, Special Agent of the Federal Bureau of Investigation.

N. L. Jordan, former Jacksonville fireman, described the Camp Blanding Fire Department, of which he is Chief.

D. W. Bronan, Chief of the Albany, Ga., Fire Department addressed the conference on "Reconstruction after Disaster" while Chief H. R. Chase of the Miami, Fla., Fire Department spoke on "Two-Way Radio in Fire Department Operation."

Another speaker was Chief James M. Duncan, Jr., of the Alexandria, Va., Fire Department, who spoke on "Operating a Volunteer Fire Department."

Other speakers included Chief H. R. McDonald, Superintendent Salvage Corps, Louisville, Ky., whose topic was "Salvage Operations"; Chief F. C. Pfaender of the Florida State Hospital, Chattahoochie, Florida, who spoke on "Fire Protection in State Institutions," Chief V. W. Crawford, Georgia State Fire Marshal, the title of whose paper was "Detection and Prosecution of Arson" and Frank R. King, Mine Safety Appliance Company, Atlanta, Ga., who spoke on "Gas Mask and Inhalator Operation." Mayor R. L. McWhorter of Atlanta, Ga., read a paper entitled "The Importance of Firemen Keeping in Step with Progress."

In addition to the papers presented, there were three round table discussions on the subjects of "The Fire Service in War," "The Development of Fire Apparatus" and "Fog Nozzles."

At the last session of the conference the following officers were elected: President, Chief E. F. Lester, Athens, Ga.; First Vice-President, Chief E. L. Matthews, Tuscaloosa, Ala.; Second Vice-President, Chief F. C. Pfaender, Florida State Hospital, Chattahoochie, Fla.; and Secretary Treasurer, Chief Walter W. Stephen, Monsanto Chemical Company, Anniston, Ala.

On June 20, two days after the conference ended, Chief E. F. Lester, newly elected President of the Association, died suddenly from a heart attack. Since then an election was held by the Executive Board and the following officers elected to fill the slate: President, Chief E. L. Matthews, Tuscaloosa, Ala.; First Vice-President, Chief F. C. Pfaender, Florida State Hospital, Chattahoochie, Fla.; Second Vice-President, Chief James W. Duncan, Jr., Alexandria, Va. 1942 Convention at Valdosta, Ga.

Dad criticized the sermon. Mother thought the organist made a lot of mistakes. Sister didn't like the choir's singing. But they all shut up when little Billy chipped in with the remark: "I think it was a darn good show for a nickel."

Chief Weeks Retires

Chief W. P. Weeks, of the Battle Creek, Michigan, Fire Department, has retired after serving forty-nine years as Chief, and after having been a member of the Department for sixty-one years.

Chief Weeks joined the fire department in 1880 at the age of fifteen when it consisted of two horses and two paid firemen.

Chief W. P. Weeks

In 1892, the year after the department went on a paid basis, Chief Weeks was appointed Chief and has served in that position ever since.

The Chief is the oldest Chief in point of service of all Michigan fire chiefs and has always been active in his department's fire fighting.

Chief Weeks was succeeded by C. A. Croiser, who took office on July 14th.

Connecticut Firemen to Meet

The 58th annual convention of the Connecticut State Firemen's Association will be held on August 22 and 23 at the High School Auditorium, Main Street, West Haven, Conn. This year's two-day meeting is under the auspices of Savin Rock Hose Company 4 and the Fire authorities of West Haven. An elaborate plan of entertainment is being arranged for the visitors.

The headquarters of the Executive Committee will be in the quarters of the Savin Rock Hose Company on Holmes Street. The Committee will hold its pre-convention meeting on Thursday, August 21 at 3 P.M. The Committee on Credentials will meet in the convention hall at 8:30 A.M., August 22 to receive registration the credentials of the delegates. The convention, with President Charles H. Brundage of New Haven in the chair, will be called to order at 10:30 A.M.

No changes other than the automatic induction of the new President, Charles Brencher of Darien, will be made among the officers. Brencher is now State Vice-President. David W. Harford of South Norwalk will be re-elected as State Secretary while Thomas C. Bracken of Branford will again be chosen as Treasurer.

THOMAS F. MAGNER.

FOR THE INTERNATIONAL CONVENTION IN

BOSTON, AUGUST 19-24

ANOTHER HISTORIC ADVANCE BY

EMERSON

in RESUSCITATION

THE NEW EMERSON DUAL RESUSCITATOR, INHALATOR AND ASPIRATOR

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AGAIN, AT BOSTON, THE NEW EMERSON DUAL RESUSCITATOR WILL MAKE HISTORY IN DEMONSTRATING FIVE DIFFERENT OPERATIONS IN A SINGLE MACHINE. SEE IT BREATHE FOR, ASPIRATE, OR ADMINISTER O_2 TO TWO PATIENTS AT THE SAME TIME.

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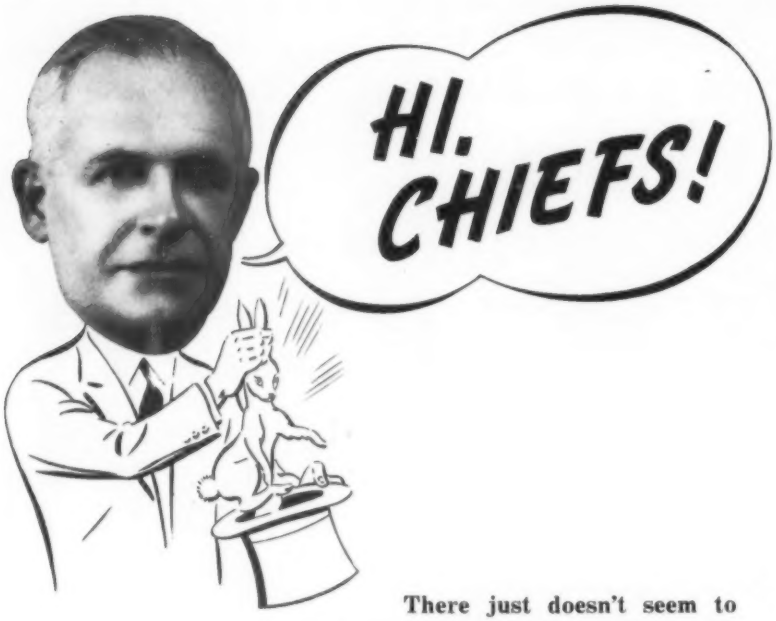

There just doesn't seem to be any way of keeping our Vice-President, R. C. (Bob) Anderson, away from the Big Convention—so we told him to pack up his old kit bag and attend the whole works.

He may not pull any rabbits out of a hat (this time) but he will pull out all the latest information on Buckeye Fire Fighting Equipment. Be sure to look up Bob and get the lowdown on what's new at Buckeye.

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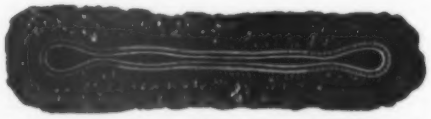

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when it is held in a flattened position between calls into service. This is why we can save a city one replacement, because the hose will give double the service of any hose constructed under the old method.
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Maine Chiefs Hold Quarterly Meeting

Cloudy weather and rain in some sections of the State did not prevent a large number of members, ladies and guests of the State Association of Fire Chiefs of Maine, from attending the quarterly meeting of the association at Rockland, July 8th. The address of

Chief Van E. Russell, Host to the Maine Fire Chiefs

welcome was extended the association by Mayor E. R. Veazie, of Rockland, which was responded to by vice-president Chief Soloman A. Herman, of the S. D. Warren Company, Westbrook. Owing to the fact that the principal speaker would not arrive until afternoon, the president introduced to the members Mr. Arthur Myers, of New York, sales manager of the Atlas Equipment Company, who explained the Atlas Fire Net, which he had on exhibition, and which was demonstrated with a one hundred pound dummy after the close of the afternoon session. The president then introduced Mr. Don Blanchard, of the Blanchard Associates, who spoke briefly of the Davy Fire Escape, which was also demonstrated at the meeting.

Chief William H. Clifford, of Cape Elizabeth, Assistant Administrator of the Fire Defense program, was called upon to explain what had been done with this program, and at the close of his remarks he called upon various county administrators to explain what had been done in their sections of the state. Those reporting were: Chief Victor Huart, of Farmington, Franklin County; Chief Soloman Mercier, of Rumford, Oxford County; Chief George McCurdy, of Augusta, Kennebec County; Chief Z. F. Drouni, of Lewiston, Androscoggin County; Chief E. J. Hutchinson, of Boothbay Harbor, Lincoln County; Chief Allen F. Payson, of Camden, Knox County; Chief Constantine, of Bangor, Penobscot County; Chief Eugene Ricker, of Saco, York County. This discussion was further entered into by Chief Van E. Russell, of Rockland; Chief Solomon Herman; Chief Ed. Reny, of Westbrook; Chief Giles Frost, of Norway; Chief Dennison, of Harrison; Ex-Chief Walter W. Berry, of Waterville; Ex-Chief Scott Morse, of Bath, and the president, Chief Stanley G. Turner, of Springvale. The summary

(*Continued on page* 471)

Questions and Answers

(*Continued from page* 433)

Handling Electrical Fires

To the Editor:

We had a fire recently in a transformer house where the incoming lines carried 1,100 volts and was stepped down to a lower voltage for plant distribution. Lightning came in on the lines and the transformers were ruptured. As a result, there was a fire of considerable intensity for a period of time. Due to the nature of the building, the only way we could reach the fire with lines of approximately 10 feet from the transformers through a window. I considered this too short a distance for the safety of the men. Therefore no action was taken until the power plant was notified and the current definitely cut off. Was this the proper way to handle this fire, the only extinguishing agent available at the time being water? What is the minimum safe distance to play 2½-inch line with ⅞-inch tips on 1,100 volts of electricity? Is there any proven protection for men operating lines on high voltage lines at very short distances. J. J. R.

Answer: Using fresh water (not salty water) it would be safe to bring the nozzle within 5½ feet of the 1,100 volt line without doing injury to the men holding the nozzle, if a person's bodily resistance is 5,000 ohms, which is about the average.

The most effective way of handling electrical fires, using water, is to employ a fog nozzle. Little damage is done to the electrical equipment, and the fog is practically a non-conductor of electricity. At a fire in Newark, N. J., a few years back, all other fire extinguishing devices were tried unsuccessfully, and water fog finally did the work in less than a minute.

Branched Lines

To the Editor:

350 feet of 2½-inch hose is stretched from an engine. At the end of the line is a 2½-inch shut-off nozzle equipped with a 1⅛-inch screw tip with a 1½-inch wye screwed on. From this nozzle are stretched two parallel lines of 1½-inch hose with a 1½-inch controlling nozzle on each, one line of which is 50 feet long and the other 100 feet long. What is the discharge and also the nozzle pressure on both ½-inch tips? D. J. D.

Answer: The solution to the problem you present is as follows:

First average the parallel lines of 1½-inch hose

$50 + 100 = 150 \div 2 = 75$ feet, which is the average of the two.

Combine these two lines of 1½-inch hose into a single line by use of the factor 3.6.

FOGNOZL—*Approved for Gasoline Fires, Too*

Copy of Factory Mutual Approval
April 1940

SPRAY NOZZLES, PORTABLE

Certain types of portable spray nozzles, using water as the extinguishing medium, will extinguish fires in kerosene and other similar or heavier flammable liquids, but other types of portable water spray nozzles are suitable for use also on fires in more flammable liquids such as gasoline.

The effectiveness of these nozzles and the size of fires which may be extinguished by their use increase with increasing nozzle pressures up to 100 lb./sq. in. The advisable limiting conditions as to minimum nozzle pressures and maximum corresponding fire area of various flammable liquids are given below for each nozzle. Where doubt exists as to the applicability of a spray nozzle, the Inspection Department should be consulted.

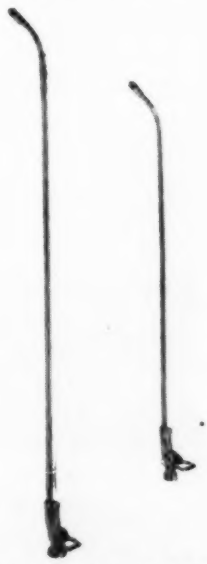
APPROVED PORTABLE WATER SPRAY NOZZLES

Note: No nozzle approved for use at pressures less than 30 lb./sq. in.

MANUFACTURER AND TYPE OF NOZZLE	Flammable Liquid	Minimum Nozzle Pressure lb./sq.in.	Water Draft g.p.m.	Maximum Fire Area sq. ft.
Manufacturer "A" (Name Deleted)	Kerosene	30 100	91 165	40 140
	No. 4 Fuel Oil	30 100	91 165	250 250
Fog Nozzle Co., The 1520 E. Slauson Av. Los Angeles, Calif. Type B—½ in. Fognozl with 6 ft. Applicator	Gasoline	50 100	10.6 14.5	5 15
	Kerosene	30 50	8.4 10.6	20 50
	No. 4 Fuel Oil	30 50	8.4 10.6	20 50
Type B—1 in. Fognozl with 10 ft. Applicator and 90° End	No. 4 Fuel Oil	100	50	200
Manufacturer "B" (Name Deleted)	Kerosene	30 100	35 67	15 50
	No. 4 Fuel Oil	30 100	35 67	120 280
	Kerosene	30 100	71 117	30 100
	No. 4 Fuel Oil	30 100	71 117	250 250
Manufacturer "C" (Name Deleted)	Kerosene	30 100	19 34	10 30
	No. 4 Fuel Oil	30 100	19 34	70 120
	Kerosene	30 100	30 55	15 50
	No. 4 Fuel Oil	30 100	30 55	100 200
	Kerosene	30 100	82 152	40 140
	No. 4 Fuel Oil	30 100	82 152	250 250

Note: The largest area controlled by a Type B Fognozl is limited by the length of the applicator.

1" BOOSTER FOGNOZL



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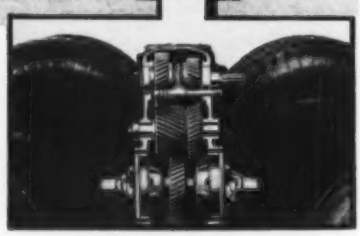

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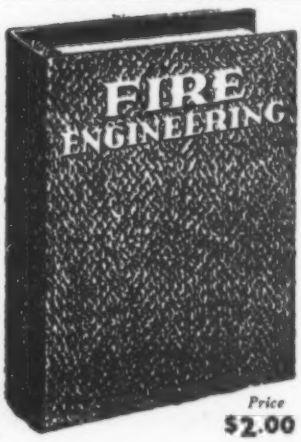

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75 ÷ 3.6 = 20.8 feet of 1½-inch hose, single line.

Change to 2½-inch hose. The conversion factor is .074.

20.8 ÷ .074 = 281 feet of 2½-inch hose, which is the equivalent of a single line of 1½-inch hose 20.8 feet long.

Then the total length of 2½-inch hose in the line is 350 + 281, or 631 feet.

L, the number of 50 foot lengths of hose in this line, equals 631 ÷ 50 = 12.62.

Combine the two ½-inch tips.

½ × ½ = .25
½ × ½ = .25
.25 + .25 = .50

$\sqrt{.50}$ = .707, which is the diameter of a nozzle equivalent in area to two ½-inch nozzles.

The nearest size standard nozzle to .707 is a ¾-inch nozzle, which has a diameter of .75 inches.

N. P. = E. P. ÷ (1 + KL)

K for 2½-inch hose and ¾-inch nozzle is .042

Then N. P. = 80 ÷ (1 + .042 × 6)
12.62)
= 80 ÷ 1.53
= 52.3 pounds.

This is the nozzle pressure on the combined nozzle.

Discharge = 29.7 × d × d × $\sqrt{P}$
= 29.7 × .75 × .75 × $\sqrt{52.3}$
= 29.7 × .75 × .75 × 7.23
= 120 gallons per minute approximately.

Next, find the pressure at the wye connection.

The friction per 100 feet of 2½-inch hose at 120 gallons per minute = 2 × 1.2 × 1.2 + 1.2 = 4.08 pounds.

Friction loss in 350 feet of 2½-inch hose = 3.5 × 4.08 = 14.28 pounds.

Then the pressure at the wye = 80 — 14.28 = 65.72 pounds.

With this pressure as engine pressure, solve for the nozzle pressure on each branch line.

For the 50 foot line with ½-inch nozzle:

L = 1
K = .104
N. P. = E. P. ÷ (1 + KL)
= 65.72 ÷ (1 + .104 × 1)
= 65.72 ÷ 1.104
= 59.5 pounds.

For the 100 foot line with ½-inch nozzles:

L = 2
K = .104
N. P. = 65.72 ÷ (1 + .104 × 2)
= 65.72 ÷ 1.208
= 54.4 pounds.

Extinguishing Sulphur Fire

To the Editor:

What is the proper method of extinguishing a sulphur fire?

A. H.

Answer: Water is about the best agent that can be used in handling sulphur fires. However, in using water on powdered sulphur, there is possibility of the sulphur being scattered in the air and explosion occurring from the mixture of the dust and the air. Where the sulphur is in loose form, a fog nozzle should be particularly effective in extinguishing the fire.

(*Continued on page* 477)

Maine Chiefs Meet

(*Continued from page* 468)

Bath, and the president, Chief Stanley G. Turner, of Springvale. The summary of the various reports showed that the fire departments have been very active in forming auxiliary groups in all sections of the state, and planning running schedules for emergency of any nature, of enlisting the boy scout organizations and American Legion groups. It seemed to be the opinion of the various chiefs that the various auxiliary groups should confine their activities to one organization, that is, they should be members of but one group, either fire, signal, or radio, etc.

It was the opinion of all chiefs that the greatest problem was the education of the public to the fact that "it may happen here." The meeting adjourned at noon, to partake of a clam bake that had been prepared for them by the members of the Rockland department, at Cresent Beach, about three miles outside of Rockland, by the sea shore; the rather inclement weather prevented holding the clam bake in the open. Governor Sumner Sewall, accompanied by Pearce J. Francis, Insurance Commissioner of Maine, and Raymond Adams, State Coordinator of the Civil Defense, arrived at Cresent Beach before the luncheon was served. When the luncheon was finished, the members listened to addresses by the Governor and his associates, who all talked along the line of State Defense work.

The members then adjourned to the Community Building at Rockland, where they had the privilege of witnessing a demonstration of various kinds of incendiary bombs by Mr. G. G. Kemp, Instructor of Chemistry in the Arlington High School, Arlington, Mass. Prof. Kemp's demonstration of bombs held the close attention of the audience, and ended with a demonstration of electron bombs.

Following the demonstration, the association resumed its business session. Six applications were received and accepted for membership in the association, as follows: active members, H. G. Tyler, Chief, Woodstock; James D. Billings, Asst. Chief, Woodstock; Asa V. Wasgatt, Deputy Chief, Bar Harbor; Russell E. Sard, Chief, Dark Harbor; Pearl Fairfield, Chief, Islesboro; associate member, Francis J. Gill, salesman fire department supplies.

Thomas Cocroft, of Scarboro, extended an invitation to the members of the association to attend a meeting at the Scarboro Town Hall on September 18th, when a proposition to organize a state-wide Firemen's Association will be discussed.

J. W. RANDLETTE.

New England Firemen's Muster To Be Held

On August 16, the Saturday before the I.A.F.C. convention, the New England States Veteran Firemen's League will hold its 49th Annual Tournament on Boston Common.

The ceremonies which will start with a parade will include contestants from every state in New England. Mayor Tobin, of Boston, has offered a thousand dollars in prizes to the winners.

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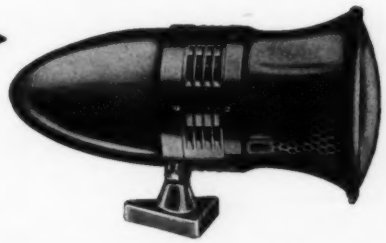
STERLING SIRENLITE (JUNIOR) NO. 20

Automatically flashes on and off rapidly. Assures quick traffic clearance. Durable and efficient. Chrome finished.



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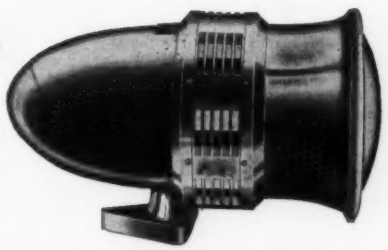

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by Robert McNeish

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Fire Prevention and Fire Losses

By James J. Deasy*

The prevention of the start of fires is as much a part of fire protection as actual fire fighting operations. This prevention activity has the added advantage in that it is an inexpensive measure of protection. In fact in volunteer protected areas it costs nothing other than the interest and time devoted to such activities by members of the department. Other and outstanding advantages of the inspections that accompany fire prevention work are acquainting the public with the hazards of fire, a more intimate contact between the public and the fire department, an assured lowering of the number of fires and consequent fire losses, members of the department gain a more intimate knowledge of construction, interior layouts, and type of occupancies of structures that they may be called on to operate in or near.

To gain and maintain the benefits of fire prevention activities firemen must not relegate such activities to one week or a few weeks each year. Fire prevention work is a 52-week job. If practiced and conducted in a methodical manner, the attendant inspections for the prevention of fire will lessen the number of fires, minimize if not entirely eliminate the life hazards that always accompany fires, possibly reduce insurance premiums, considerably reduce the wear and tear on apparatus and equipment. By a lessened number of fire extinguishing operations there is a decided conservation of water, which in communities lacking public supply is an important factor, especially in periods of prolonged drought.

Statistical records prove that where fire prevention activities are a continuous fire department routine, fire losses have been considerably reduced, this reduction factor especially noticeable in dwellings and like occupancies.

Rural areas have not been thoroughly educated up to the all important part of fire prevention. In fact it is admissible that for other than a few small items in local newspaper and an occasional and belated radio appeal, Fire Prevention Week is just another week with little or no significance to those who should be vitally interested, for it is in farm and like sections that the aggregate fire losses in property and life are greatest.

To gain the objectives outlined in the foregoing, firemen must have a methodical and well coordinated plan to conduct the work of Fire Prevention.

New Station for Flin Flon, Can.

In the municipal district of Flin Flon, Manitoba, Canada, a new fire hall was recently constructed to house the Volunteer Department's equipment and some of the members. The construction of this station became a necessity when the municipal council purchased a second piece of equipment to strengthen the department.

The fire hall itself is compact with no space wasted. It measures twenty-

* Battalion Chief (Retired), New York Fire Department.

eight feet in length and thirty-two feet in width. There is room for three trucks, thereby leaving no room for loitering on the apparatus floor. In the rear of the station is a hose storage rack and a small work bench.

Steam radiators on the wall at each side give plenty of heat, and a small valve has been set in the steam line to which is kept coupled a twenty-five-foot length of small steam hose. This may be used at any moment to obtain steam for thawing out the pumps when they return from fires.

On the second floor, there is sleeping room for six firemen, and a lounge or recreation room for the members' use. A sliding pole is to be installed, but not the "shining" brass type, this being too costly for a working man's town. (Any Department having a spare one lying idle, please note.)

The temperatures that are experienced up in Flin Flon can best be realized by actual illustrations. The three fires which occurred in January were fought in temperatures of seventeen below zero, eighteen below and ten below.

Not having a telegraph alarm system, the department depends on telephones for fire alarms. When an alarm is sent in, a gong is sounded in the pump house to notify the operator who starts the fire pump to increase the pressure in the mains of the water system. Another gong is sounded in the Public Works Department warehouse so that the municipal employees, who are members of the department, can respond at once.

The department is affiliated with the N. F. P. A. and is probably the farthest north fire department on the membership roll. In 1939 and 1940, the department was awarded first place in class "D" towns for the Province of Manitoba for educational activities held during Fire Prevention Week.

WALTER REDMAN,
Chief of Fire Department,
Flin Flon, Canada

$7,455,000 Needed for Fire Fighting

According to the State Council of Defense, Rhode Island needs $7,455,000 worth of fire fighting equipment to place its protection departments in readiness for any emergency.

This figure, based on an estimate of need made by the home defense committee of the Fire Chiefs Club of Rhode Island, would be sufficient to set up auxiliary fire stations and to bolster present weak spots in the State's fire fighting systems.

In addition to the money needed to buy fire fighting equipment, the sum of $400,000 would be required for a statewide communicating system and fire alarm system tying in nearly all communities, several of which now are unprotected, and covering eighty-five per cent of the population and ninety per cent of the industrial area.

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Being a centrifugal pump, it is less susceptible to harm or damage from sand or other abrasives in the water. The pump will handle any kind of water, including mine and salt water.

Brief Specifications

Pump	centrifugal
Impeller	bronze
Shaft	Monel
Bearings	oversize
Priming	vacuum
Engine	gasoline electrically started
Trailer	channel frame—semi-elliptic springs—knee-action mono-wheel at front

The unit can be quickly attached to any passenger car or truck or can be handled by two men when necessary.

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The new SEALAND can be used either as an auxiliary booster pump or as the sole means for community fire fighting service.

It comes in either 150-gallon or 300-gallon capacities, delivering pressure from 120 lbs. to 400 lbs., and is adapted to either ¾" or 1" chemical hose or 1½" or 2½" fire hose. Materials of construction same as above.

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Convention Dates

Aug. 4-5—NEW YORK STATE FIRE FIGHTERS' ASSOCIATION. Annual Convention, Syracuse, N. Y. Secretary, Frank A. Emden, 1403 Mather Ave., Utica, N. Y.

Aug. 4-6, 1941—INDIANA FIREMEN'S ASSOCIATION. 25th Annual Convention, Kokomo, Ind. Secretary, Burley Marshall, P. O. Box 725, Terre Haute, Ind.

Aug. 7-9—MONTANA STATE FIREMEN'S ASSOCIATION. Annual Meeting. Glendive, Mont. Secretary, J. A. LaForest, Quartz Street Fire Station, Butte, Mont.

Aug. 11-13—WISCONSIN PAID FIREMEN'S ASSOCIATION. 34th Annual Convention, Marinette, Wis. Secretary, G. J. Johnson, Racine, Wis.

Aug. 12-15—VIRGINIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Staunton, Va. Secretary, R. B. Barker, Newport News, Va.

Aug. 13-16—COLORADO STATE FIREMEN'S ASSOCIATION. Annual Meeting, Fire School, and Tournament, Steamboat Springs, Cal. Secretary, Clinton Turnbull, 215 Boston Bldg., Denver, Col.

Aug. 16-17—VERMONT STATE FIREMEN'S ASSOCIATION. Annual meeting, place not fixed. Secretary, W. H. Adams, Vergennes, Vt.

Aug. 17-20—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, Auburn, N. Y. Secretary, Arthur Bleau, Weslyan Street, Amsterdam, N. Y.

Aug. 19-22 — FIREMEN'S ASSOCIATION STATE OF NEW YORK. Annual Concention, Geneva, N. Y. Secretary, Fred A. Davis, Port Edward, N. Y.

Aug. 19-21—KENTUCKY FIREMEN'S ASSOCIATION. 22nd Annual Convention, Covington, Ky. Secretary, V. A. Beam, 2221 W. Broadway, Louisville, Ky.

Aug. 18—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. Annual Convention, Boston, Mass., Secretary John W. O'Hearn, Watertown, Mass.

Aug. 19-22 — INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 69th Annual Convention, Hotel Statler, Boston, Mass. Secretary, D. B. Tierney, Arlington, Mass.

Aug. 20-23—WASHINGTON STATE FIREMEN'S ASSOCIATION. Annual meeting, Yakima, Wash. Secretary, Hugh Leslie, Auburn, Wash.

Aug. 22-23—CONNECTICUT STATE FIREMEN'S ASSOCIATION. 58th Annual Convention, West Haven, Conn. Secretary, D. W. Hartford, 10 Chestnut Street, South Norwalk, Conn.

Aug. 23-24—REGIONAL FIRE SCHOOL OF HAMILTON COUNTY. Annual Fire School, Koenig Park, Reading, Ohio.

Aug. 25-29 — PENNSYLVANIA FIREMEN'S TRAINING CONFERENCE. 3d Annual Conference, Pennsylvania State College, State College, Pa. Secretary, Charles E. Clark, Box 217, Wayne, Pa.

Aug. 26-29—DOMINION ASSOCIATION OF FIRE CHIEFS. Annual Convention, Peterborough, Ont. Secretary, Chief James Armstrong, Box 56, Kingston, Ont.

Aug. 28-30—WEST VIRGINIA FIREMEN'S ASSOCIATION, Annual Convention, Weston.

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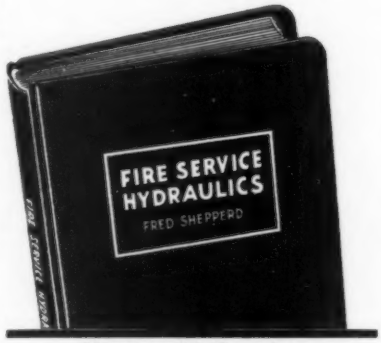

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Sept. — NEW HAMPSHIRE STATE FIREMEN'S ASSOCIATION. Annual Meeting, place not fixed. Secretary, A. G. Robinson, Manchester, N. H.

Set., 1941—IOWA FIREMEN'S ASSOCIATION. Annual Meeting. Chariton, Ia. Secretary-Treasurer, Paul A. Saener, Independence, Ia.

Sept. 2-5—MARYLAND FIRE COLLEGE. 12th Annual Fire College, University of Maryland, College Park, Md. Director, J. W. Just, University of Maryland, College Park, Md.

Sept. 8-10—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. Annual Meeting, Reno, Nev. Secretary, J. W. Stevens, 1014 Merchants Exchange, San Francisco, Cal.

Sept. 9—STATE ASSOCIATION OF FIRE CHIEFS OF MAINE. Annual Meeting, Norway. Secretary, Charles W. Bowker, S. Paris, Me.

Sept. 10-11—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Middletown, Del. Secretary, W. W. Pettyjohn, Dover, Del.

Sept. 12-13—NEW JERSEY STATE FIREMEN'S ASSOCIATION. Annual Meeting, Atlantic City, N. J. Secretary, Evan F. Benners, R. 602, 24 Branford Place, Newark, N. J.

Sept. 13-14—OHIO STATE VOLUNTEER FIREMEN'S ASSOCIATION—Annual Convention, Kent, Ohio. Secretary, Sidney Wellock, 2976 S. Main treet, Akron, Ohio.

Sept. 15-17—OREGON STATE FIREMEN'S ASSOCIATION. Annual Meeting, Bend, Ore.

Sept. 22-25—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 19th Annual Convention, Huntington Hotel, Pasadena, Cal. Secretary, H. E. Strasser, 3046 Oregon Ave., Long Beach, Cal.

Sept. 24-26—TENNESSEE FIREMEN'S ASSOCIATION. Annual Convention, Johnson City, Tenn. Secretary, Joe J. Martin, Nashville, Tenn.

Sept. 25-27—MONTANA FIRE SCHOOL. Annual Meeting, Polson, Mont. Secretary, D. E. Moser, Bozeman, Mont.

Sept. 29-Oct. 2—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. 46th Annual Meeting, Hotel Jefferson, St. Louis, Mo. Secretary, Irving Shulsinger, New York City.

Oct. 2, 1941—WALWORTH COUNTY FIRE OFFICER'S ASSOCIATION. 11th Annual Meeting. Secretary-Treasurer, C. A. Foster, Lake Geneva, Wis.

Oct. 7-9, 1941—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. Annual Convention, Greenburg, Pa. Secretary, Charles E. Clark, Box 217, Wayne, Pa.

Oct. 14-16, 1941—ILLINOIS FIREMEN'S ASSOCIATION, Inc. Annual Convention, Bloomington, Ill. Secretary, Roy W. Alsip, Champaign, Ill.

Oct. 21-23, 1941—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Norfolk, Neb. Secretary-Treasurer, Louis A. Novak, Box 788, Norfolk, Neb.

Safety Devices to Stop Theatre Panics

Two ingenious safety devices for preventing fire panic from breaking out in theatre crowds were discussed by Earl R. Morin of Fairfield, Conn., theatre inspector for the Connecticut State Police Department, at the recent convention of the Society of Motion Picture Engineers held at Rochester, N. Y.

Inspector Morin was the first policeman ever to address the society, which includes 1,200 engineers whose talent and research are said to be responsible for the scientific advances of the industry that has produced films ranging from "Gone With the Wind" to Mickey Mouse cartoons. Morin, who does considerable research work on theatre fire control, demonstrated a model projection booth and an air-conditioning control system, the first aimed at controlling and localizing any projection booth fires, and the second at eliminating the threat of panic if smoke is drawn into a theatre air-conditioning system from a fire outside the theatre.

The model booth, which duplicates a regular booth even to fireproof door, waste basket and wash bowl, is equipped with a fuse which, if a fire breaks out, automatically drops the shutters over openings through which the pictures are

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projected, turns on the house lights, and starts a fan to draw smoke out of the booth. The model air-conditioning control system, which is actuated by an "electric eye," and can be put into operation with a small puff of tobacco smoke, shuts off the smoke source by dropping a shutter over the air-conditioning passage and lights a special warning signal.

According to Inspector Morin, most of the theatres throughout the country have installed projection booths similar to the one he exhibited and in the motion picture house of today, several reels of film can be burned in a projector without jeopardizing the lives of the persons in the theatre, and the only damage might be to the paint on the machine.

At his home in Fairfield, Inspector Morin has a laboratory where he has been studying means of reducing fire risks for the past sixteen years in which he has been connected with the Connecticut State Police Department. One of Mr. Morin's greatest difficulties after inventing a device that will reduce fire hazards is to get manufacturers to make it. Another is that in doing the research he has to keep in mind the ultimate cost of any new devices to the theatre owner.

At the present time, Inspector Morin is seeking a manufacturer to make a damper release which can be used wherever a fuse link is attached and will be an added protection. This device's latch is held mechanically, released electrically, and reset manually. It operates on twelve volts, ac or dc current.

In regard to the progress in theatre fire control that has been made in Connecticut in recent years, Inspector Morin says:

"Theatres today are in a much safer condition from fire hazards than department stores. In the past three or four years we haven't had any fires worth mentioning in theatres while shows were going on. There was a fire in a Bristol, Conn., theatre recently and another in the Dixwell Theatre in Hamden several years ago but both occurred when there was no performance going on."

Inspector Morin's advice about fires starting in the modern projection booths is not to attempt to put them out because it's not possible. He says the best thing to do is just let the reels burn themselves out.

THOMAS F. MAGNER.

Ohio Chiefs Meet

The Twenty-fourth Annual Convention of the Ohio Fire Chiefs Association was held at Lancaster, Ohio, from June 24th to 26th.

The convention opened with a fish fry put on by the firemen of Local No. 291 of the Fire Fighters of Lancaster.

The program was a very complete one with papers by Chief E. P. Welch, Columbus, Ohio; Chief James E. Granger, Cleveland, Ohio; T. Alfred Fleming, National Board of Fire Underwriters, New York City; Chief C. A. Delaney, Lakewood, Ohio; J. Burr Taylor, Western Actuarial Bureau; E. P. Coffey, Chief of Technical Laboratories of the F. B. I., Washington, D. C.; Battalion Chief L. W. Green, Columbus, Ohio; Tom Henderson, Standard Oil Company; George Richardson, International Association of Fire Fighters, Washington, and Dr. Thomas E. Ash-

Questions and Answers

(*Continued from page 470*)

Rupture of Water Mains

To the Editor:

I have heard of a few instances where using too many fire engines pumping on city mains caused them to burst. If this true, what is the cause?

Our neighboring town had this happen when two 400 G. P. M. pumpers were operating on a 6-inch main and 75-foot elevated tank.

H. O.

Answer: I have never heard of water mains collapsing due to too heavy a draft on them. However, it is not a rare occurrence to have a main rupture due to a sudden shutting-off of a controlling nozzle. When a nozzle is snapped shut, where a centrifugal pump is employed, the pressure wave travels through the hose, through the pump and back into the water main. Rupture of water mains from this cause may occur.

If you put a perfect vacuum on a water main, due to heavy draft on it, the pressure would be but 14.7 pounds per square inch over the surface of the main. If a water main will hold an internal pressure of 90 pounds, which is a minimum, it certainly would hold 14.7 pounds on the outside.

Hence, I believe the rupture of the main referred to was caused by water hammer rather than by over-draft.

Calculation of Butt Pressure

To the Editor:

A pumper is connected to a hydrant. It has a line of 400 feet of 2½-inch hose attached to the discharge side of the pump. The engine pressure is 70 pounds. What is the pressure at the 2½-inch butt? There is no nozzle. M. J. K.

Answer: In solving problems of this type, the usual nozzle pressure formula is employed. "K" for 2½-inch open butt on 2½-inch hose is 3.35.

Butt pressure (nozzle pressure) = E. P. ÷ (1.1 + KL)

E. P. = 70 pounds

K = 3.35

L = 400 ÷ 50 = 8

Then Butt Pressure = 70 ÷ 1.1 + 3.35 × 8)

= 70 ÷ 27.9

= 2.51 pounds.

This is the pressure at the butt end in pounds per square inch.

Fired With Chagrin

City Island (New York City) firemen responding to a Bronx alarm, found Robert Mathews clad only in shorts, socks and shoes "burned with mortification." Mathews, a negro, explained he'd gone for an auto' ride with two men and women he thought were friends but they stripped him of clothes, took his $2 and dumped him out of car, whereupon he turned in alarm. Sentence suspended.

MR. FIRE CHIEF . . . . .

INSIST ON THE ORIGINAL INVINCIBLE NOZZLE

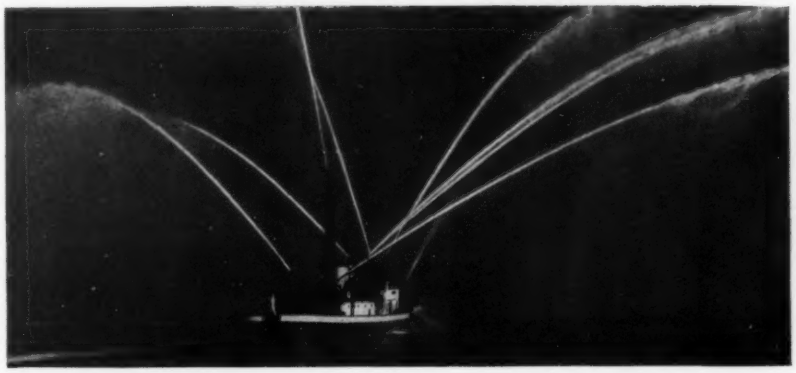

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Fig. 156 Morse Shut-Off Nozzle and Playpipe

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Clippers to cut steel as thick as your thumb — big powerful tools for heavy wrecking jobs. In-between sizes to fit every need. Special tools for cutting cable, flat stock, etc. Swivel head models — the "wrist action" tools which reach around corners at all angles. This catalog covers the entire Porter line. Tells about hardness of metals and the right cutting tools. It is yours for the asking

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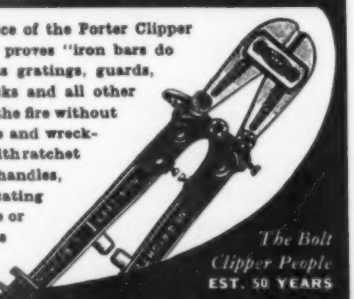

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EST. 50 YEARS

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ton, Anchor Hocking Glass Corporation.

Next year's convention will be held in Galion.

The newly elected officers of the Association include the following, President, Chief Joseph A. Kirby, Dayton; First Vice-president, Chief Robert Clark, Kent; Second Vice-president, M. W. Gifford, Boardman; Secretary-Treasurer, Chief Edward J. Green, Steubenville; Directors, Chief E. P. Welch, Columbus, and Chief Robert R. Leedom, Portsmouth.

CHIEF EDWARD J. GREEN,
Secretary-Treasurer

Civil Defense Preparation

(*Continued from page* 421)

Washington, D. C.

S. T. Porter, Chief

Plans are well under way for the formation of auxiliary fire and police forces. Instruction and training courses for auxiliary men are being prepared and registration of volunteers has been completed.

We are prepared to train defense volunteers on very short notice. Our Drillmaster and assistant are to attend classes at Edgewood Arsenal on incendiary bomb work.

The defense unit is headed by Major E. W. Brown, Superintendent of Police. The Chief Engineer of the Fire Department is Chairman of the Fire Defense Committee of the Civil Protection Unit.

Roanoke, Va.

William M. Mullins, Chief

We have started drills and training schools backed up by our industrial plants, by all city employees of the Street and Park Departments and by others who wish to take this training. We have had fine support from the men who have taken this training. The industrial plants who sent the men have kept them on the payroll.

These men are given a complete course in evolution work, such as coupling engines, drafting water from rivers and ponds, laying hose lines, learning to use all types of nozzles, hooking up deluge sets and large nozzles, catching hydrants, turning the water on and off, learning the use of standpipes and sprinkler systems, using soda and acid fire extinguishers and other types, raising and placing all types of ladders against buildings, etc.

The Chief of the Roanoke Fire Department is also serving as Chairman of Blue Ridge Post No. 11, Fire Protection Mobilization Committee, which consists of five counties in the State of Virginia.

Green Bay, Wis.

R. H. Drum, Chief

Letters have been sent out to all the industries in the city, asking them to cooperate by setting up an emergency fire department in their plants. A list of suggestions have also been sent. These are as follows:

1. Appoint various foremen as group leaders in each of their own departments.
2. Have foremen assign dependable

men to the extinguishers they are to use in an emergency so they can act as a unit.

3. Inspect extinguishers more frequently because they can, and have been emptied, and an inflammable solution substituted.

4. Inspect sprinkler systems more often, for during 1940 more than 26,000 systems failed to operate because of deliberate sabotage or of failure to open the systems after they had been closed for testing or repairing.

5. Inspect standpipe hose more often and change the folds from time to time to discover if they have been tampered with.

6. Lock flammable liquid storage.

7. Do not allow strangers to loiter about your place of business.

8. Investigate the background of new employees before hiring.

9. Instruct the men not to use water on the following fires if confined: metal dust, electrical apparatus, gasoline, oil tar, various acids or carbide. Use a smothering agent that has been approved by the National Board of Fire Underwriters.

10. Intensify and enforce fire prevention rules.

11. Because of unsettled international conditions, it is necessary during these times to be more alert than usual to the above suggestions.

12. Remember always to call the Fire Department.

Every industry is cooperating 100 per cent with us. All emergency groups are now set up and are operating very well. Fire Department inspectors are working with groups in industries perfecting their organizations. The Fire Department is also training 100 boys over 15 years of age.

The Fire Chief, in addition to his work in setting up the organization, is also Chairman of the local Red Cross Disaster Committee. He has the city mapped out so that in an emergency each City Councilman has charge of his own ward. A block system is to set up with a leader in each block.

Our plan is simple, is workable and does not require the expenditure of a lot of money. We have explained it to the Chamber of Commerce and to all civic organizations. They are all working with us.

Elkhart, Ind.
Alex W. Dotson, Chief

I have a number of different programs on file in my office, but nothing has been done to date regarding the organization of a committee. The Fire Chief in all probability will be appointed to the committee when it is appointed.

There doesn't seem to be any alarm or excitement regarding war and nothing in the way of sabotage has happened here to make the people excited. The Fire Department is keeping close watch on the few plants engaged in making war material by making frequent inspections and making suggestions to the management about watchman service and prompt dispatching of fire or other alarms to the Fire Department.

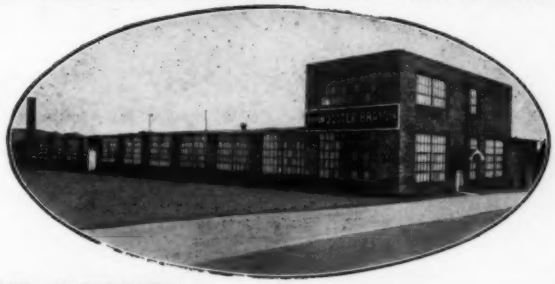
Mason City, Ia.
Daniel H. Shire, Chief

Nothing has been done in our city in the way of organizing a civil defense unit.

I feel that New York and other big

HOSE BRASS GOODS OF DISTINCTION

Our Personnel has had over 40 years of experience in the FIRE EQUIPMENT Industry.



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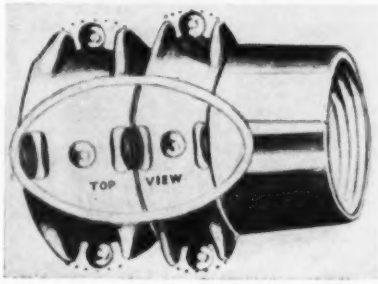

Save several cents per foot by specifying GUARD LUG on your next Hose order.

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If you were making the Best Shut-Off you knew how, wouldn't it look like this?

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Selected to protect citizens and property by some of the biggest cities in America . . . some of the smallest hamlets. . . . Selected to protect the New York World's Fair in 1939 and 1940. . . .

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The New Plastic Atomizer Tip Fog-Maker

Newest, scientific fog-maker for fighting fires where solid streams are inadvisable, as inflammable oils, grease, tar, etc., and where a rich, atomizer-fine spray is wanted for cooling or smothering burning materials, dissipating smoke, gases and heat without waste of water.

MUL-T-JET is *all-plastic*; has no metal or movable parts or pieces. It will not rust, corrode or tarnish, nor will chemicals or oils injure it. It is easy to keep clean and is a non-conductor. Although lighter than metal, it has strength to withstand extreme nozzle pressures and rough handling.

MUL-T-JET is compact; can be slipped into a "turn-out" pocket; takes no longer to attach or detach than an ordinary metal tip. MUL-T-JET operates effectively at *average pressures*. Biggest news of all, MUL-T-JET sells for a *fraction* of the cost of other type "fog-nozzles"— *complete, for only*..... $5.95
(No extras, no attachments needed.)

Now, every piece of apparatus in your department can have an effective fog-maker! Write for free descriptive folder—or, better still, send order for MUL-T-JET, with sample of your tips (which will be returned with MUL-T-JET, postpaid). Address

Made for nozzles with male or female thread.

MUL-T-JET NOZZLE CORPORATION
11 West 42nd Street, New York, N. Y.

EQUIP EACH OF YOUR FIREMEN WITH THE BENTON SAFETY TOOL

A MULTIPLE TOOL THAT PERFORMS THE WORK OF 11 TOOLS!

Can be used as an axe, pickaxe, chisel, crow-bar, pinch bar, nail puller, sheet metal ripper and spreader, spanner wrench, for pin lug and rocker lug hose couplings, fire hydrant, gas valve, sprinkler head wrench and an electric wire cutter.

Weighs only 3¾ lbs., with correct balance to deliver efficient, quick precise blows. 18 inches long, with rubber safety grip affording protection from electric shocks.

The BENTON SAFETY TOOL is manufactured from high grade alloys which will withstand percussive blows, and a steel which holds a keen cutting edge without hazard of fracture; a steel of high tensile strength and ductility.

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BENTON TOOL CORP. CLEVELAND, OHIO

cities who know what it is all about should put on schools where chief officers can learn the right methods in handling emergencies.

We have no war orders so far and are not troubled by sabotage at the present time. I do feel, however, that this department should know what to do when a disaster does occur. We are the bread basket of America and disaster might occur anytime during the harvest.

Davenport, Ia.
R. A. Kelley, Chief

A civil defense unit is being formed at the present time. This unit is composed of the following cities: Davenport, Ia.; Rock Island, Ill.; Moline, Ill.; East Moline, Ill.; Silvia, Ill.; Bettendorf, Ia.; and the Rock Island U. S. Government Arsenal. The Fire Chiefs of these cities are on the defense committee. The status of this work is to form a fire defense unit and to set up a fire communication system between the above named cities, and also to guard against fire, sabotage, etc.

San Francisco, Calif.
Charles J. Brennan, Chief

Mayor Angelo J. Rossi has appointed the San Francisco Civil Defense Council which is headed by Mr. Charles R. Page, President of the Fireman's Fund Insurance Company. The Chief of the Fire Department attends all meetings as consultant.

We are planning to set up defense measures after the pattern of the New York recommendations as listed in "Wartime Fire Defenses in London."

West New York, N. J.
Ernest G. Beckert, Chief

We have a civil defense unit which includes the Superintendent of Schools, the Chief of Police, the Fire Chief and the Director of the Board of Health.

We are training civilians to cooperate with the Fire Department. They are given instruction in laying hose, coupling hose and in holding fire streams.

I believe some method of financing the program should be found. However, we in West New York never had any serious trouble even during the last World War.

Spokane, Wash.
W. P. Payne, Chief

The city of Spokane has a local defense plan which is headed by the Commissioner of Public Safety, the Fire Chief, the American Legion and other patriotic organizations.

We have two army airports and maintain twenty-four hour constant duty at one with fire apparatus and men especially trained to guard against any disaster that might arise. The other is controlled entirely with army personnel. Our department defense plan embodies the work and duties of the volunteer and regular members both on and off duty. Strict obedience to the local plan is maintained. We maintain rigid inspection of all industries and factories. Men are being trained for future use. Control of all gases, oil, chemicals and explosives is in the hands of the Fire Department.

The Fire Chief has also been named Director of this district, which includes six counties, by Governor Langlie and

he is in direct charge of all activities of this group.

Every thirty days the city plans to stage an imaginary emergency disaster. Any points needed or found lacking will be remedied at that time. At the present writing we are very proud of the local set-up and believe it to be the best in the country.

All members of this department are instructed in what their duties will be in the emergency disaster. The local Red Cross, nurses' chapters and physicians' committees will be in attendance at the mock disaster, together with the Veterans of Foreign Wars, American Legion and other organizations of this type. Upon the declaring of an emergency by the Commissioner of Public Safety, all members will report to their posts as outlined in our plan. The whistles of industrial plants will blow for five minutes at one minute intervals, announcing to the general public the disaster. Announcements will be made four local radio stations. Tents will be set as near as possible to the disaster location, and every action will be completed as though an actual emergency were at hand.

Mr. Walter Williams, Chairman of the Washington State Defense Council, has selected Governor Langlie to act as ex-officio Chairman. He, in turn, has selected me to guide the actions of this section of the state in cooperation with the central committee. It is with that power of administration that we will conduct our local test emergencies in the future.

Saginaw, Mich.
F. W. Bender, Chief

Plans are now under way to organize the veterans and other reputable citizens who wish to volunteer their services for home defense work. If our present plans go through, the Fire Department will train several hundred of the above as an auxiliary unit to assist the Fire Department.

I believe that Mayor LaGuardia should appoint a representative Fire Chief or two on the National Defense Committee. I also believe that one or more Fire Chiefs should act in an advisory capacity with the chairmen of each state council. I have been reliably informed that about eighty-per cent of the activities during and following air raids are those performed by the fire department. If this is true, then the fire chiefs and fire departments of this country are not receiving the recognition to which I believe they are entitled.

Joliet, Ill.
John Nygren, Chief

We have formed a Joliet Area Defense Council comprising eight cities and villages. The Council is formed as part of the Illinois State Council for National Defense.

We have had about four meetings. Our council consists of an executive committee and eleven sub-committees covering different phases of community life such as housing, education, recreation, labor, hospitals, health and sanitation, welfare, fire and police, aviation, public utilities, highways, etc.

Mayor George T. Jones of this city is General Chairman.

The council is progressing very rapidly and everyone is enthused as it is considered of vital importance to our national defense program.

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FIRE PUMPS HALE CONSHOHOCKEN PA

for defense----

The complete line of Hale Fire Pumps, Rotary and Centrifugal Trailer Pumpers and Pumping Units accurately meets the modern requirements of national defense.

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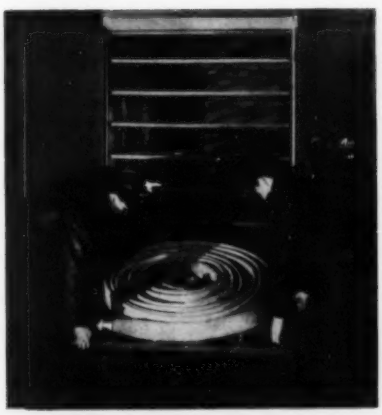

American Defense interests can best be served if every factor of the Fire Service and its associated agencies will further this theme, which has been adopted by the National Board of Fire Underwriters for this, its 75th, Anniversary.

YOUR DEFENSE IS AS VULNERABLE

as your FIRE HOSE SUPPLY, because the exigencies of the present emergency, with the constant threat of sabotage in vital defense industries, require more frequent use of hose than ever before . . . require a larger hose inventory and a means of DRYING IT FASTER. YOU CAN DO YOUR PART in overcoming the present shortage of hose and equipment by estimating your requirements and ORDERING NOW. . . . Deliveries are slow, and OPM Priorities, strikes and Rationing of Rubber make the situation more serious day by day. . . . Order all the hose you can get, and provide your Department with a Modern, Safer, Easier method of DRYING YOUR HOSE QUICKLY, thus keeping all of it ready for service all of the time. . . . That's the function of the

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MAKES YOUR HOSE SUPPLY "GO FARTHER"

Ask Your Fire Hose Salesman, or Write To

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DAYTON POWERDRAULIC
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Expander-Hose Tester
Patented Expansion Ring Extractor

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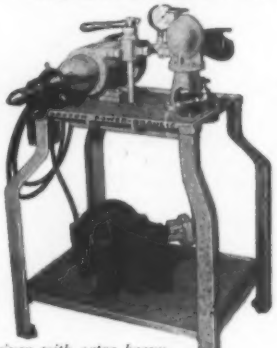

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Recognized as Standard Wherever Fire Hose Is Coupled and Tested

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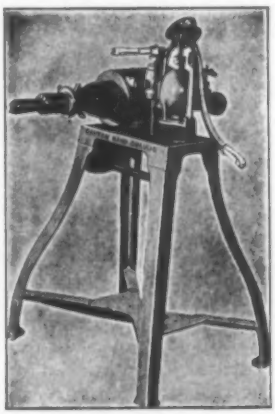

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For Cities Not Requiring a Motor Driven Expander
For Smaller Towns We Likewise Manufacture Manually Operated and Mechanically Motor Driven Expanders

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MORE PRESSURE - LARGER MOTOR
ROOMIER WORK TABLE
REPLACEMENT SEGMENTS (ALL SIZES)
FOR ANY OLD HYDRAULIC EXPANDER

SEND FOR ILLUSTRATED BULLETIN

DAYTON FIRE EQUIPMENT CO.
1242-48 W. 2ND ST., DAYTON, OHIO

PITY THE FIREMEN IN DETROIT DURING THE VOLUNTEER DAYS

Early Letter Written in 1855, Describes Activities in City as Regards Firemen and Fire Apparatus

THE late Hayward Murphy, Fire Commissioner at Detroit, acquired, shortly before his death, for his collection of fire department memorabilia, an original letter, written May 2, 1855, by George A. Porter in which Mr. Porter expresses to Charles S. May, a friend in the East, great apprehension and grave misgivings over the volunteer fire department situation in Detroit and particularly about "a Fred"—whoever Fred may have been.

Devoid of its extraneous verbiage, the letter, while anything but laudatory of voluntary fire fighters of eighty-five years ago, is nevertheless entertaining because of its originality and its innocent dread of the life of a fireman as so provincially expressed by the writer. The letter in part goes thus:

The Letter

"Detroit, May 2, 1855.

"Dear Friend:—Just the richest affair having taken place that has ever come to my knowledge. The Common Council of this City lately passed an ordinance that the Fire companies should not be allowed to draw their engines on the sidewalks, since lives and limbs have been endangered thereby—that is, on sidewalks belonging to streets that are paved. This act, although perfectly just, caused many murmurs among the Fire Companies, since it made their labors more difficult. So today, being review day, after they had paraded, four of the Companies disbanded and left their Engines in the streets.

"Zach Chandler and some other of the prominent citizens who witnessed the operation, buckled themselves in and dragged them to the Station Houses. The Mayor—Ledyard—learning of it, called a meeting of the people at City Hall. The House was jammed. The exercises were opened by the Mayor, stating the object which it had been called for. A committee of eight was appointed to draft resolutions and while it was out there were loud calls for several individuals.

Lothrop made his "calling and election uncertain by taking the stand. He spoke beautifully for some fifteen minutes and was on the floor about twice that length of time, since he was frequently interrupted by an awful tempest of cheers and groans. He sustained the authorities fully, and gave it to the Fire Company that had broken up. The meeting was pretty evenly divided between friends of law and order, and those who turn out at Fires for the sake of having a good time. *** The resolutions were then brought in, highly lauding the action of the City Fathers and recommending the immediate organization of four new companies that should take the vacated places.

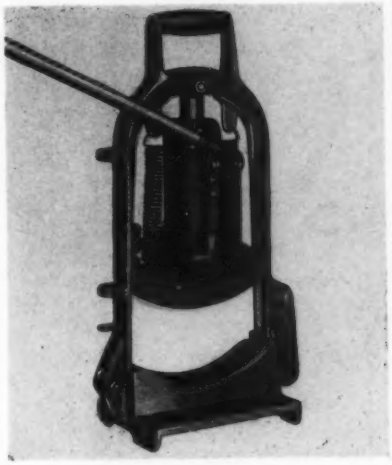
"Here I come to what I wish to tell you. As soon as an opportunity was given for Volunteers, half the prominent citizens in the City stepped forward to give their names. Fred being at the meeting, I kept my eye on him, suspecting that in the enthusiasm of the moment he might do something desperate. It wasn't long before I saw him making towards the Clerk's desk. God of mercy—imagine my sensations when I saw him in imagination, with a flannel shirt and a leather skullcap on, squirting water around the streets on parade-day. I elbowed my way through the crowd as quick as I could, and urged him to go home with me. The poor fellow shook his head and said that he must go to the Engine House No. 1 and help organize!!!!

"I cast my eye on the paper he had signed which read thus—'We the undersigned promise to become and continue members of the Fire Co. No. 1 so long as our services may be required'. No partial promise, no limited time, but to serve till disabled from active service, by age or wounds. With his name were those of Jones and Crosby—Attorneys, and John Owens, one of the wealthiest ship owners in this city. In Volunteer Co. No. 6, Lothrop's name came near heading the list. Think of it, some twenty or more of the Detroit lawyers going into a useful business!!!! See them pegging it over the cobble stones with Engines weighing 3000 lbs at their heels!!!!

Incendiarism a Problem

"Hot weather is coming on and the only enjoyment in life is getting a good night's sleep. See these miserable wretches pumping away at their infernal machines until water is obliged to be pumped on them to bring them to. Add to this that the city is literally full of incendiaries, that alarms of fire are more frequent than meals, that the Engine House is half a mile distant, that the conflagrations generally take place in Sodom, two miles in the other direction, that every one of the Company as far as I know except the 'Engineer' has hitherto considered a fire a damnable bore, that when a man runs at full speed through the public streets, he is taken for a thief, or worse than a 'greenhorn'—and you can have some idea, faint though it must be, of a Volunteer Fireman's duties and pleasures, who unless a virtuous action is its own reward, the Lord don't know where he gets any. See him too at a private boarding house, rushing down three steps at a time and not always so deliberately as that, wrenching vainly at a door that the owner locked hours ago, and whose key is safe in his breeches pocket under his pillow. See him too one of a committee of three whose duty it is to keep the Engine polished, and its wheels greased. Lastly, see him in full uniform, not with a dozen of brass buttons, and a couple of brass 'curry-combs' pendant from his 'upper flanks,' but flannelled from collar to belly-band.

The B&L
Hydraulic
HOSE SHUT-OFF



The B & L Hose Shut-Off was invented and designed by a captain of a Metropolitan Fire Department.

It weighs only 25 lbs., the minimum weight that will provide complete safety. Easy to handle, it can shut off a 2½" line charged with 250 lbs. in 12 seconds, safely and efficiently. Its action is as positive as a hydraulic jack.

This shut-off is not only valuable to metropolitan fire departments, but has equal value to volunteer units. It gives complete control at the "point of fire." It does away with all the confusion and danger attendant to changing nozzles or transferring a charged line. It cannot slip. It is positive, accurate and, above all, definitely safe.

Be sure to see and visit our display at the I.A.F.C. Convention and ask for a free demonstration. We will be glad to explain and show the efficiency of this shut-off to you.

SEND FOR FREE DESCRIPTIVE LITERATURE.

LANGE TRACTOR-EQUIPMENT CO.
DULUTH, MINN.

Patented in United States and Canada

and trotting briskly to the inspiring notes of a copper trumpet. Why a cotton hand, or an Esquimeaux pack-dog is happy in comparison!!!

"Alas as the books (novels) say, I must look on Fred as dead, and if he isn't now, he will be after the first fire. He says little on the subject, but that little indicates that he is in a settled melancholy. I can't say he is resigned, though he says he would devilish quick if he could.

"Thursday morning—There was no long alarm of fire last night, but I could hear and feel Fred go through the evolutions of Volunteer Co. No. 1. I want you to write him soon, as consolation from some quarter is needed. I believe there are some vacancies in Co. No. 6 (Lothrop's) but I have no intention of filling one of them though they should gap to all Eternity. . . .

"Begging pardon if my unasked letter prove a bore, I remain,

"Truly your friend,

"George A. Porter.

"All I have said about Fred is literally true, and the only consolation he can discover is, that 15 or 20 of his legal brethren are harnessed in with him. He says in regard to greasing hubs, that he has had plenty of exercise on Father's old horse cart—that you will remember. I shall publish an article in some paper by and by, giving the actual experiences of a Volunteer Fireman, of which I will send you a copy.

"George A. Porter"

Two-Way Radio Serves Fire and Police

By A. W. Moniot* and C. W. Wasmansdorfft

INTELLIGENCE through communications is the fundamental principle by which any emergency system functions. The success of an army on campaign, of a police department in prevention and detection of crime, and a fire department in protection of life and property, depends largely on their ability to carry on speedy, reliable and accurate communications at all times.

Regulations of the Federal Communications Commission do not provide for separate frequencies for municipal fire departments except in the case of marine fire stations. This means that a fire department contemplating the installation of two-way radio must either relay its message via telephone through the police channels or install remote control equipment for operating the police transmitter from the fire station. Many fire departments have hesitated to attempt to get the full use of two-way radio because of this fact.

The city of Glendale, Cal., with a population of 82,425, has installed a two-way radio system on all fire equipment and police cars operated by the two departments, using the same remotely controlled transmitter, which not only has provided proper intelligence through communications, but actually has increased the efficiency of each of the two

*Superintendent of Fire Alarms, Glendale, Cal.
†Superintendent of Police Communications, Glendale, Cal.

FIRE FIGHTERS APPRECIATE

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VALVES HYDRANTS
and
PIPE LINE ACCESSORIES

A. W. W. A. HYDRANTS
Underwriters Approved

Conform to American Water Works Association specifications. Approved and listed by Underwriters' Laboratories and Associated Factory Mutuals. Well known and widely used for many years.

M & H Fire Hydrants are dry top and revolving head. They are easy to lubricate. Maintenance costs are low, due to simplicity of design and rugged construction. They have low friction loss and great efficiency because barrel diameter is not reduced and there are no working parts or obstruction in waterway. Special Traffic model is designed to yield at the ground line under impact. Repair is simple and easy by renewing breakable bolts and breakable coupling on stem.

M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA

departments by coordinating their activities.

Here is how this communications system operates.

When an alarm is received at the central fire station, it is instantly transmitted by radio to all fire trucks, fire stations, police station, and police patrol cars by the fire alarm operator.

The total elapsed time from the receipt of an emergency call until all responding equipment and personnel has been notified and are rolling, does not exceed thirty seconds.

Assume that a box alarm has been received. The alarm operator puts a tap on the alarm circuit, which turns on all fire department radios. These receivers have been kept "hot", although inoperative, so that there is no waiting for tube warm up. The operator broadcasts the box location and assigns the equipment which is to roll. The police department, notified by the same broadcast, assigns a police car to the scene of the fire. The car acknowledges and the sequence is completed.

Other police cars in districts through which equipment may be rolling, have also heard the broadcast and start clearing traffic at major intersections. Possibilities of collision between emergency units is cut to a minimum due to the fact that each driver knows from which direction other units are approaching. Verification of the broadcast is sent over the alarm circuit in the regular way. The first piece of equipment to arrive, calls in its arrival, indicating whether more or less equipment is needed and the exact location of the fire if not received en route. In practice, we have found that before equipment arrives at the box, the exact location of the fire has been obtained and broadcast.

On the broadcast of box alarms, patrol cars who may be close to the box, check the vicinity in case a false alarm has been turned in. This facilitates apprehensions in this type of case.

Ambulance with Radio

The ambulance, which is operated by the fire department, is also two-way equipped and may be dispatched by either the fire department or police operator, who may receive information and transmit calls or dispatch the ambulance in the same manner as a fire call.

The completed system consists of two 250-watt main station transmitters, remotely controlled by dual panels at the police department and a remote panel at the fire department. This means that in the event of transmitter trouble, the police dispatcher has only to throw one switch and he is operating from the other transmitter and remote panel. Emergency power is provided by gasoline power plant, which cuts in automatically in the event of power failure. There are two of these emergency power plants and with the transmitters are strategically located at widely separated points, assuring the greatest protection against natural or potential hazards.

Each transmitter has been constructed so that it may be operated directly from the transmitter room in event of loss of the remote control points. It is apparent then, that there are four separate places of general broadcast that may be used.

The entire system, both main stations and mobile units, operates in the ultra-

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HELMETS

Made in Regulation or Drop Brim styles, in both leather and aluminum, in sizes and weights to suit all preferences, and incorporating all the best safety features.

Write for information on our special light-weight leather "Defense" Helmet, which fills the need for extra helmets where the appropriation does not permit the more expensive standard styles.

Write for Catalog 30A

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SELF-OILING ASSURES POSITIVE ACTION !

The Self-Oiling Feature on the Mueller-Columbian Fire Hydrant means that this hydrant oils itself automatically. All operating mechanism in the top or bonnet section are constantly immersed in an oil bath which prevents rust or corrosion, eliminates excessive wear, and insures easier turning of the operating nut.

There is no tugging or straining to open or close a Mueller-Columbian.

MUELLER CO.
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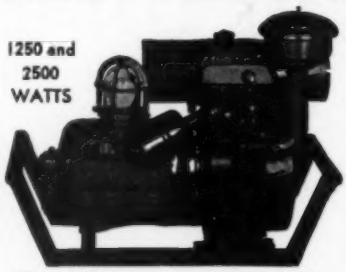
"U.S." PORTABLE LIGHT PLANTS

1250 and 2500 WATTS



This 1250 watt, portable unit has been designed expressly for fire department use. It is small, light, compact and equipped with carriers for easy portability out on the job. Air-cooled 4-cycle engine 2⅝" bore x 2⅝" stroke. 2.4 H.P. 2 gallon fuel tank. Quick starting. Also 2500 watt size.

LARGER SIZES AVAILABLE

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USE Shuredry SALVAGE COVERS

Control loss from water damage by the use of SHUREDRY SALVAGE COVERS.

Thorough drill in their use as covers and catchalls will improve your department's record. Light and easy to handle, they do not freeze even at very low temperatures and will not crack when folded for storage.

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Manufacturers Since 1870
Atlanta St. Louis Dallas New York
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high frequency spectrum (main station frequency 33,940 kilocycles, mobile units 33,220 kilocycles.)

In summarizing, the police and fire departments operate over this system as separate entities, yet each is cognizant of the movements of the other. There is no possibility of the police department interfering with fire department emergency messages as the fire operator may take control at any time.

This combined system in actual practice has coordinated emergency action so well that it is a distinct advantage to both Fire and Police Departments.

Poison Gases at Fires

By Chief Wm. H. Gardiner

Underwriters Fire Patrol,
Kanses City, Mo.

THE gas hazards encountered in fighting fire and the need of standard methods of protection against them have been presented and discussed at various times at the annual conventions of the American Chemical Society, National Board of Fire Underwriters, National Fire Protection Association, and the International Association of Fire Chiefs.

Every fireman and policeman should have a thorough knowledge of common industrial gases, including their formation, detection and physiological effects. It would be idle to discuss the full characteristics of these gases at this time, but it is necessary to treat them in a general way.

Annual Toll Large

Every year in this country approximately 10,000 people lose their lives because of fire. It has been observed and commented upon that many of these victims are not burned but succumb to the effects of smoke and gases. When deaths from these sources are reported it is notable that almost never has it been found, specifically, what poisonous gas or gases caused the fatality.

When we read of firemen and others who were overcome in fires it is said they have been affected by "smoke" or "chemicals," both extremely general terms. Occasionally, however, there is an incident, which, because of its peculiar conditions, is analyzed more specifically. An example of this is the Cleveland Clinic Fire on May 15, 1929, in which 125 persons lost their lives due to fumes from decomposing photographic films (nitrocellulose).

Because of its terrible death toll a careful investigation was made into the nature of the gases involved. The following elements were all present in combination: Carbon, oxygen, nitrogen and hydrogen. From the results it is evident that the gases formed in the building included various combinations of these elements, the oxides of nitrogen and of carbon, and probably free hydrogen, as well as unstable compounds of all these elements. It was said that approximately 30 per cent of the gases were carbon monoxide, which contributed to the destruction of life as well as property.

Those affected by the gas included doctors, nurses, patients, employees, fire-

Excerpts of paper presented before the Kansas City Police Emergency and Disaster Training School.

FIRE FIGHTING OFFICIALS
Recommend the Safe Enclosed Potter Slide Fire Escapes for Your Public Buildings

IN THEY GO

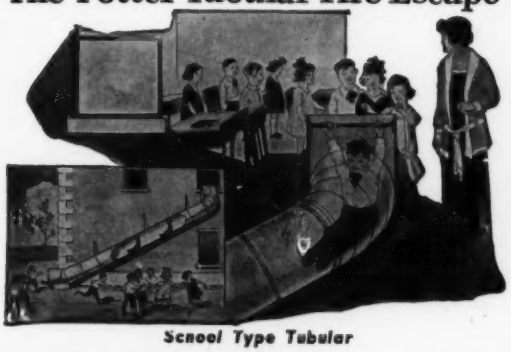
OUT THEY COME

above
Hospital Type Spiral

59 POTTER SLIDE FIRE ESCAPES
now being installed at Kingsbury, Indiana, Ordnance Works

More than 6000 now in use. • Hundreds of lives saved in actual fires. • If you have a School, Hospital or Institution, or an industrial plant with high fire hazard, write for catalog. • Recommendations of our experienced engineers are yours for the asking — No obligation.

The "Potter Tubular Fire Escape"



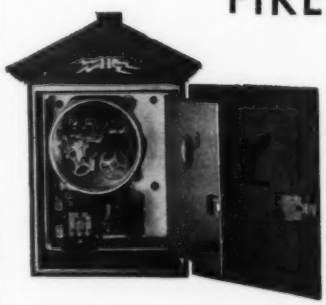
School Type Tubular

Potter Mfg Corp
SLIDE FIRE ESCAPES

JAMES A. FLYNN
Pres.

6160 N. CALIFORNIA AVENUE CHICAGO, ILL.

HARRINGTON FA-20
FIRE ALARM BOXES



are high quality boxes in every detail. Made of cast aluminum inside as well as out, they make for light, fast and easy installations and long, corrosion-free service.

Equipped with quick action doors, furnished to meet every specific requirement. They are quick acting and non-interfering, of the shunt and successive type.

We are also in a position to furnish repairs for any of the former HARRINGTON-SEABERG equipment.

Send for literature giving full description of the various units we manufacture.

HARRINGTON SIGNAL CO., 116 17th Street, Moline, Ill.

men, policemen, volunteer rescuers and spectators. No one was burned to death or killed outright by the explosion. The fire started in the basement of the building in a room used for storage of X-ray films. The first fire alarm was officially recorded at 11:30 o'clock a.m. the second alarm at 11:34 and the third alarm at 11:44 a.m. Approximately 250 people, doctors, nurses, employees and patients, had been in the building.

This is something for us to think about in a general way. Our department stores are filled with cellulose products, and should fires occur in the departments or stock rooms where such merchandise is kept, it is most likely that nitrous oxide fumes, carbon monoxide and other toxic gases will be liberated into the atmosphere. Such gases are capable of overcoming and killing a person very quickly.

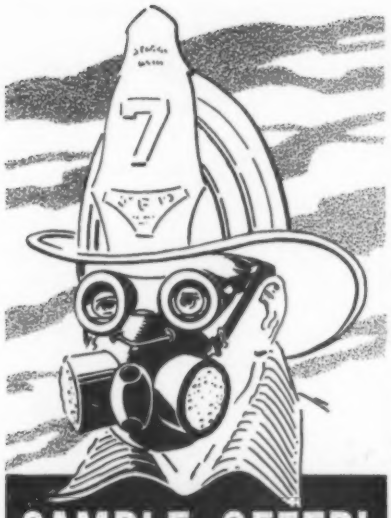
Gases from Burning Rubber Are Many and Complex

Let us consider the results of burning rubber, such as in electrical fire. Here rubber insulation is both burned and destructively distilled. Tests and investigation of the atmosphere produced by the burning of insulation with abundant oxygen shows that carbon dioxide, carbon monoxide, hydrocarbons, hydrogen, hydrogen sulfide and sulfur dioxide are all present, in sufficient quantity to cause death when breathed for a relatively short space of time. Sulfur dioxide is a toxic gas, hydrogen sulfide is an extremely toxic gas, and carbon monoxide is highly toxic. With these gases in the atmospheres at rubber fires, how is it that we do not find many fatalities where fires in this material occur? The first two of these gases are highly and offensively odorous. Perhaps that is the answer to this question. The real gas dangers in any fire are: First the cut-off of escape so that the trapped person must breathe the gases no matter how offensive or repulsive they may be, and second, the production of non-odorous and non-irritating poisonous gases which the victim does not realize he is breathing.

Other Poisonous Gases

Other poisonous and asphyxiating gases encountered are oxides of nitrogen, sulfur dioxide, ammonia fumes, chlorine, gasoline and petroleum vapors; acid and miscellaneous vapors; and phosgene, hydrochloric acid gas and carbon tetrachloride vapor.

It is hardly reasonable to expect that the fire or police department responding in such emergencies as refrigeration gas leaks or bad, smoky fires can tell just what kind of gas he is going into. The safest procedure to be followed upon arrival is to get the gas mask ready for use. Unfortunately, there is a widely held belief that a handkerchief or other piece of cloth tied over the mouth and nose constitutes a gas mask. Many lives have been lost through this false belief. It can readily be seen that fabrics that permit air to pass through for breathing purposes will also permit the passage of noxious gases. Dust respirators afford no protection against noxious gases. Most fire chiefs feel favorable to the all-service masks, hose masks, and the self-contained oxygen breathing apparatus that carry the approval of the U. S. Bureau of Mines.



SAMPLE OFFER!
New DUPOR No. 20, Double Sponge Smoke Mask ($24 doz.)
and famous
"Nod & Shake", Fog-Proof
RUBBER GOGGLES ($18 doz.)
1 Sample of Each Sent
H. S. COVER
68 CHIPPEWA ST.
SOUTH BEND, INDIANA
$3.50 POST PAID

TO FIRE CHIEFS EVERYWHERE!
INSIST ON THE COLT SHUT-OFF NOZZLE and Get the Best Nozzle Made

The unquestioned durability of the COLT has for twenty-five years been the subject of discussion among fire fighters.

When efficiency is demanded, the COLT has been found to be the easiest to operate, and will stand the severest test of strength and use better and longer than any other nozzle.

Furnished in three sizes —¾" and 1" for chemical hose, 1½" for leaderline work, 2½" for playpipes. Plain or rubber bumper tips furnished. All shut-off nozzles guaranteed for 5 years.

To Serve You Better

On Oct. 1 we will move to our brand new factory now being constructed at 3452-54 North Knox Ave., Chicago, where we will have double our present floor space.

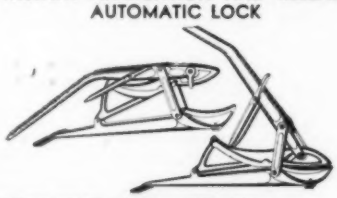
Write for catalog and name of dealer nearest you or see your regular supplier.

EXCELSIOR BRASS MFG. CO.
217-219 W. Illinois Street, Chicago, Illinois
Manufacturers of Fire Hose Nozzles for over 25 Years

JANESVILLE QUALITY FIRE COATS

Our coats are giving excellent satisfaction in most of the large fire departments throughout the U. S. and THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY
Rubber and Duck Coats and Bunkers, Boots, etc.
We also manufacture White Striped Safety Coats.
Write for illustrated folder.
JANESVILLE APPAREL CO.
JANESVILLE, WIS.

THE NEW PEERLESS HOSE CLAMP
Type E. The Result of 30 Years Experience in Hose Clamp Production
SIMPLE CONSTRUCTION
INSTANT APPLICATION AND RELEASE
AUTOMATIC LOCK



SAVES TIME—MEN—EFFORT
Making New Methods Possible.
APPLY CLAMP ON FLAT HOSE
Check Water—Carry the Line Up Ladder or into Warehouse Empty—Release Man at Hydrant to Help Handle Line.
SAVE TIME IN MAKING CHANGES
No Tracing of Lines — To Shut Down — Instead Use the Men to Make the Changes.
SPECIFY
The NEW PEERLESS on NEW MOTORS
AND GET THE BEST
Sold by All Reputable Dealers
Patented U. S. and Canada
MANUFACTURED BY
KELLAM MANUFACTURING CO.
ATLANTA GEORGIA

WHERE TO BUY

A HANDY LIST OF REPUTABLE MANUFACTURERS

FOR EASY REFERENCE WHEN YOU'RE IN THE MARKET FOR NEW FIRE EQUIPMENT

(Page number following each name refers to advertisement in this issue)

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Harrington Signal Co. (*p. 485*)

Cable

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Central Station Equipment

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Sirens & Whistles

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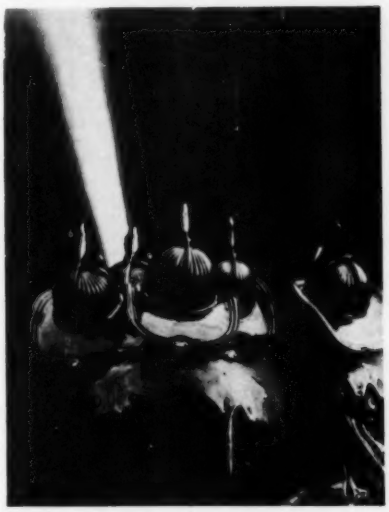
For information about products of any manufacturer not listed above, write to Readers' Service Dept., FIRE ENGINEERING, 24 West 40th St., New York, N. Y.

CLEAN WATER MAINS GIVE YOU PRESSURE



When the flames break through the top floors there is only one way to get at it . . . PRESSURE! . . .

When you need multiple streams to surround and protect property, there is only one factor to consider . . . PRESSURE! . . .

CAN YOU DEPEND ON YOURS?

IF THE WATER MAINS IN YOUR CITY ARE CLOGGED BY INCRUSTATION YOU CAN'T POSSIBLY GET FULL PRESSURE.

RECOMMEND A NATIONAL CHECK-UP

OF THE WATER DISTRIBUTION IN YOUR CITY. CLEAN MAINS MEAN BETTER FIRE PROTECTION AND LOWER FIRE INSURANCE RATES.

Write to us for further information.

NATIONAL WATER MAIN CLEANING CO.

50 CHURCH ST. NEW YORK CITY

The WHEAT SPOTLIGHT

a MUST under the **NATIONAL DEFENSE PROGRAM**

Fire Departments today are called upon to protect the industries that produce our National Defense Program. Equipment built for endurance as well as rugged service is paramount. The WHEAT Spotlight fills one of these demands. With its 25,000-candlepower light, its 100-hour bulbs and 1000-hour battery, it stands ready at all times to answer any demand made on it.

Its battery is rechargeable, without removing it from the lamp and the entire lamp only weighs 6 lbs.

Its light weight and convenient shoulder strap makes it not only a MUST for your department but invaluable because it allows the operator to have both hands free for other duties such as ladder or hose work—

Write for full information

KOEHLER MFG. CO.
MARLBORO, MASS.

The LUM PRO-TEC-TIVE FIRE NOZZLE
with a Safety Water-Shield

The only Protective Fire Nozzle that you can use your own shut-off and fog tip.

WRITE TODAY. Get all the additional interesting facts about this amazing new device. Take the first step toward greater safety, economy and reduced fire losses. Write direct or consult your local distributor. For full particulars and special 'trial offer".

LUM PRO-TEC-TIVE FIRE NOZZLE
8903 MANDALE AVE., DETROIT, MICHIGAN

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TRAFFIC WARNING DEVICES

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Wooster Brass Co. (*p. 479*)

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The New

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For motor fire apparatus, it is the only fire bell ever developed to operate electrically from instrument panel or floor board. Immediate response—louder sound. Uses less current than one headlight bulb. Electrical unit can be supplied for your present bell.

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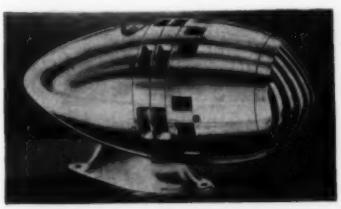

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automatically furnishes the correct amount of oxygen or oxygen carbon dioxide mixture and automatically indicates the correct timing of resuscitation.

No valve adjustments are required. Does not require two men to operate. Is practically fool-proof.

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WHERE TO BUY

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TO FIGHT FIRES!

PORTABLE CUTTING EQUIPMENT
Light . . . easy to carry . . . cuts steel *fast*.

KEROSPHERE FIRE PUMPER DISCHARGE VALVE
Positive . . . adjusts smoothly at high pressure—non-creep . . . non-corrosive.

85,000 C. P. ULTRALITE
Guaranteed bright at ¼ mile . . . light . . . one-hand operated . . . long-life battery.

NEW SQUAD WAGON
Big, rugged, high speed—contains every emergency tool—all of above equipment and 275 other necessities *built-in*.

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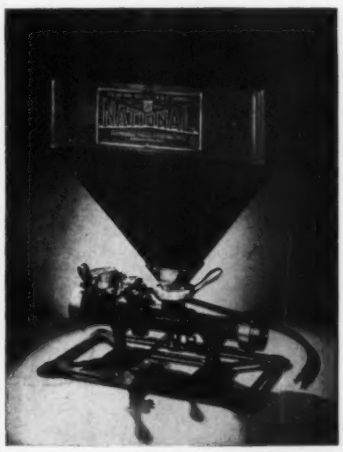

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FOR FIRE DEPARTMENTS
NATIONAL
SF-21
FOAM GENERATOR
for running board mounting
Capacity—
1100 gallons of foam per minute
Write for details to:
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Kansas City Inspection Record

The Inspection Bureau of Kansas City, Kans., has adopted an Inspection Blank which has most of the common hazards, found in an inspection, clearly printed on the blank itself. The Inspector has but to mark the number of the hazard found on the line provided for the same. After he has made his inspection, he obtains the occupant's or manager's signature and gives the occupant or manager a copy of the blank. By following this procedure, the property owner accepts knowledge of the fact that hazards do exist on his property. If there is a fire in the place at question, the owner cannot say that he knew nothing of the hazardous conditions. If a second inspection shows that no steps have been taken to clear up the condition, then the Captain of Inspectors personally visits the place in question and contacts the owners concerning the matter.

For the larger institution, where an inspection has revealed a hazardous condition existing, the Chief of Inspectors sends a letter to the Attorney General showing that the company represented is maintaining a hazardous condition, and that should any individual other than the plant owner receive injury or lose his life because of the failure to correct the condition, then the company must assume full liability. Both of these inspection warnings have been used with a great deal of success in eliminating dangerous conditions.

Pumping Records

In answer to a correspondent's request for information on records of other pumpers throughout the country the following figures have been received.

Charles S. Walker sent in information concerning a 750-gallon pumper in Rochester, N. Y., which pumped continuously for 133 hours. The remarkable thing about this record was the fact that the pumper kept three lines supplied at 200 psi in below zero weather. When shut down, the entire pump and pressure dome was blanketed with a foot of ice. This engine was an Ahrens-Fox piston type of pumper.

Another record sent in by Mr. Walker was established by an Ahrens-Fox pumper of the same model as described above in Brighton, N. Y., which pumped for 214 hours to relieve excessive flow in a sewer main. While this was not fire service, it still was exceptional.

A Long Performance

Chief Daniel Shire of the Mason City, Ia., Fire Department sent in the pumping records of three pumpers which supplied the United States Arsenal at Rock Island, Ill., with water from the Mississippi River, in 1918. Chief Shire was given orders to commandeer pumping equipment from Davenport, Ia., Rock Island and Moline, Ill.

Davenport furnished a 1,000-gallon centrifugal pumper, Rock Island, a 1,000-gallon rotary pumper, and Moline, a 750-gallon piston pumper. About 1,600 feet of 2½-inch hose was laid from each pumper on the river bank to the settling basin of the filtration plant. These engines pumped continuously for nine and one-half days, supplying raw water

ALWAYS DEPENDABLE
Rugged strength, the right weight and long wear—combined with the skill of 82 years' experience in making Fire Hose.

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FIRE HOSE
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SOLID MULTIPLE WOVEN
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BOOSTER • CHEMICAL • SUCTION
STREET and SEWER FLUSHING
TERRITORIES ARE NOW AVAILABLE.
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ARMING AMERICA AGAINST FIRE

This advice is more pertinent now than when we first issued it six years ago. Although it is important at all times to be adequately protected against fire, you are apt to overlook your requirements during normal times.

With deliveries as they are at present, we urge immediate consideration of your fire defenses, and suggest that orders be placed now, for early delivery.

For full information on any form of fire protection, write or 'phone:

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We Specialize in

MADE-TO-ORDER FIREMEN UNIFORMS

Leading manufacturers of uniforms for the New York City fire department. Samples and prices gladly sent upon request.

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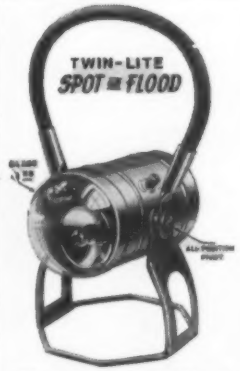

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Here's a Real Spot or Flood-light Tailor-made for the Fire Department

One of the handiest and most efficient electric lanterns ever made—the kind your men deserve. 2-lite lantern—safe—needed where light must not fail—switch instantly to spot or flood light. With the "All Position" Pivot Base, shine the light at any angle! Light in weight, heavily finished and most economical to operate . . . 60 to 80 hours on one standard 6-volt lantern battery. Built by one of the oldest manufacturers of industrial electric-battery lanterns. Write for catalog and prices.

THE METAL WARE CORP.
TWO RIVERS - - - WIS.
SALES OFFICES: CHICAGO - NEW YORK

from the Mississippi River, and kept the arsenal going until new pumps were received and installed at the river station. The total time for each pumper was 228 hours, and two of these are still in service today.

Instructions to Theatre Ushers

Mr. Ted Emerson, Manager of the Omaha Theatre in Omaha, Neb., in cooperation with the training the Fire Department has given their ushers in first aid and fire prevention has issued a card listing all the emergency equipment of the theatre.

Each of the ushers has this card and have their own meeting every Saturday morning regarding it.

CHIEF A. W. OLSEN,
Omaha, Neb.

Fire Chief Receives Call to General Staff in Washington

Fire Chief Ray D. Wells, of the Falmouth, Mass., Fire Department, has been called into service with the Army General Staff at Washington. He holds the rank of major in the reserve corps.

If Chief Wells passes his physical examination, which is required by the army, he will be replaced as Chief by action of the Board of Selectmen. His successor will be appointed on a temporary basis. Chief Wells will head the department on his return.

The Chief became the head of the fire department twenty-two years ago.

Chief Wells' army work has been chiefly in training in mobilization. It is most likely he will be used in a similar capacity if accepted for service.

Emergency Equipment - - Omaha Theatre

IN CASE OF A FIRE

STAGE:
Fire Box—West side of stage.
2½ Gallon Extinguisher—Engineer's room.
2½ Gallon Extinguisher—South wall of basement.
2½ Gallon Extinguisher—Hallway to locker room.
2½ Gallon Extinguisher—East side of stage.
2½ Gallon Extinguisher—West side of stage.
2½ Gallon Extinguisher—East stage entrance.
1 Quart Pyrine Gun—Next to fire box—West side of stage.
Fire Hose—West side of stage.
Fire Hose—East side of stage.
Fire Hose—First floor of dressing rooms.
Fire Hose—Second floor of dressing rooms.
Fire Hose—Third floor of dressing rooms.
Automatic asbestos fire curtain at front of stage.
Automatic sprinkler system covers entire stage including dressing rooms.
Automatic fireproof doors lead on and off stage.

MAIN FLOOR:
2½ Gallon Extinguisher—West rear exit.
2½ Gallon Extinguisher—East center exit.

MEZZANINE—2nd FLOOR:
2½ Gallon Extinguisher—West exit.
2½ Gallon Extinguisher—East Exit.
2½ Gallon Extinguisher—Art Shop.
2½ Gallon Extinguisher—Men's lounge.

BALCONY—3rd FLOOR:
2½ Gallon Extinguisher—West foyer.
2½ Gallon Extinguisher—East exit.
2½ Gallon Extinguisher—Outside of booth—east side.

BOOTH AND ATTIC—4th FLOOR:
2½ Gallon Extinguisher—Booth.
1 Quart Pyrine Gun—Booth.
2½ Gallon Extinguisher—Compressor Room.
1 Quart Pyrine Gun—Compressor Room.
Booth is entirely enclosed by automatic steel panels over windows and fireproof doors.

NEAREST FIRE HYDRANTS:
Front of Haspo Music Store—West.
Front of Calandra's Camera Store—East.
Front of Federal Bldg.—North.

IN CASE LIGHTING SYSTEM FAILS
Emergency Lanterns—West side of stage.
Emergency Lanterns—Main floor office.
Emergency Lanterns—Mezzanine—2nd floor office.
Emergency Lanterns—3rd floor office.

IN CASE OF ACCIDENTS OR ILLNESS
First Aid Cabinet—Main floor office.
First Aid Cabinet—Mezzanine floor office.
First Aid Cabinet—Booth.

Card Showing Emergency Equipment of the Omaha Theatre

New Apparatus for Savannah

During the past four months, Savannah, Ga., has purchased four 750-gallon pumpers, two hose wagons, and one aerial truck. This apparatus together with Savannah's present equipment, will fit that city to meet any emergency that might arise. Work on painting and renovating all fire stations has been started, and when completed, the Fire Department property will take on an appearance of prosperity. The new apparatus was badly needed.

One of the 750-Gallon Pumpers That Have Been Placed in Service Recently

Those in the picture reading from left to right are, J. H. Cobb, Jr., Secretary to Mayor Gamble; W. G. Logan, Purchasing Agent; Chief Walter S. Blanton, of the Savannah Fire Department, and the factory delivery engineer.

Harris Brothers

"WORLD FAMOUS SEARCHLIGHTS AND FIRE EQUIPMENT"

These rugged lights are built for service. Many hundreds of them are still in service, after 20 years or more of use.

Write to us for complete information on any of your needs.

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Harris Brothers Mfg. Co.
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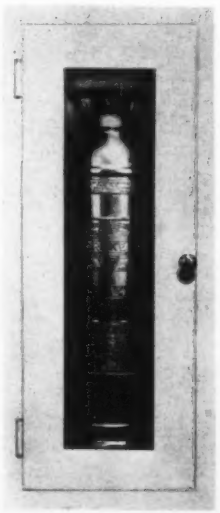
CROKER
FIRE PREVENTION CORP.
(Est. 1911)

ALL Types of FIRE APPLIANCES •



AND FIRE DEPARTMENT BRASS GOODS •

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New York
N. Y.

Regional Training Classes Held in Quincy

Mayor Thomas S. Burgin, the only New England mayor who is a member of both the New England Fire Chiefs Association and the International Association of Fire Chiefs, was the principal speaker at the first closing exercises and banquet of the Quincy Firemen's Regional Training Classes Course, conducted during the past several weeks at the Quincy Central Fire Station under the direction of drillmasters, Captain Bob Fenby and Captain Thomas Gorman.

Mayor Burgin said, "The American fireman is proving himself worthy of his job by joining regional firemen's training schools. When we consider events in England today, firemen must be mentally alert and fast in action."

In recognition of its pregressive fire fighting and fire prevention record, the Massachusetts Department of Education, Division of Vocational Education, recently named Quincy as the seventeenth zone center of the state. Braintree, Cohasset, Hingham, Hull, Milton, Norwell, Scituate and Weymouth are serviced through the Quincy zone.

Mayor Burgin, who is serving his third term, has built three new fire stations and has recently added a new 100-foot aerial truck, three new pumpers and a special service emergency truck.

Chief William J. Sands, of the Quincy Fire Department, is one of the South Shore's most progressive fire officials.

LARRY DONOVAN.

Ex-Chief Devine Dead

James Devine, former Chief of the Fire Department of Salt Lake City, Utah, died in that city on August 3, at the age of 82. A native of New Jersey, Mr. Devine was active in the construction field in the East, and when he went West, played a prominent part in building work in Salt Lake City, as a member of the firm of Devine & Robinson.

On February 20, 1894, Mr. Devine was appointed Fire Chief of Salt Lake City, holding this post for ten years, during which time he built the department up to a very efficient organization and established a fine record, keeping the fire losses to a low level, in spite of the handicap of a small force and inadequate water supply with which to fight fires.

In 1896, two years after his appointment as Fire Chief, he was elected president of the International Association of Fire Chiefs, by a unanimous vote.

A Busy Fourth

Independence Day has passed as a nightmare for firemen. This year it's reported not a single life was lost as direct result of fireworks although there were many casualities. Traffic and other accidents, however, more than made up, causing hundreds of fatalities.

In Elizabeth (N. J.) police hadda make house-to-house search for four aerial bombs stolen from a fireworks tent. Each bomb contained 3 ounces of dynamite.

In Providence (R. I.) it cost Wm. Kiernan five days in jail to get a light for his cigarette. He sounded an alarm and asked Batt. Chief Charles Dwyer for a match!

485 Pages Profusely Illustrated

Be Prepared to meet Any Emergency *with* THE FIRE CHIEF'S HANDBOOK

The Greatest Book on Fire Fighting

Written by Fred Shepperd, in collaboration with the Educational Committee of the International Association of Fire Chiefs.

The most complete and authoritative source of practical, helpful data—gives reliable, up-to-the-minute answers to almost every question that might come up in modern fire fighting methods.

Progressive fire chiefs, interested in keeping themselves abreast of current methods of meeting fire emergencies, need this book. It is the book every fire fighter should own and study.

$4 Per Copy Postpaid

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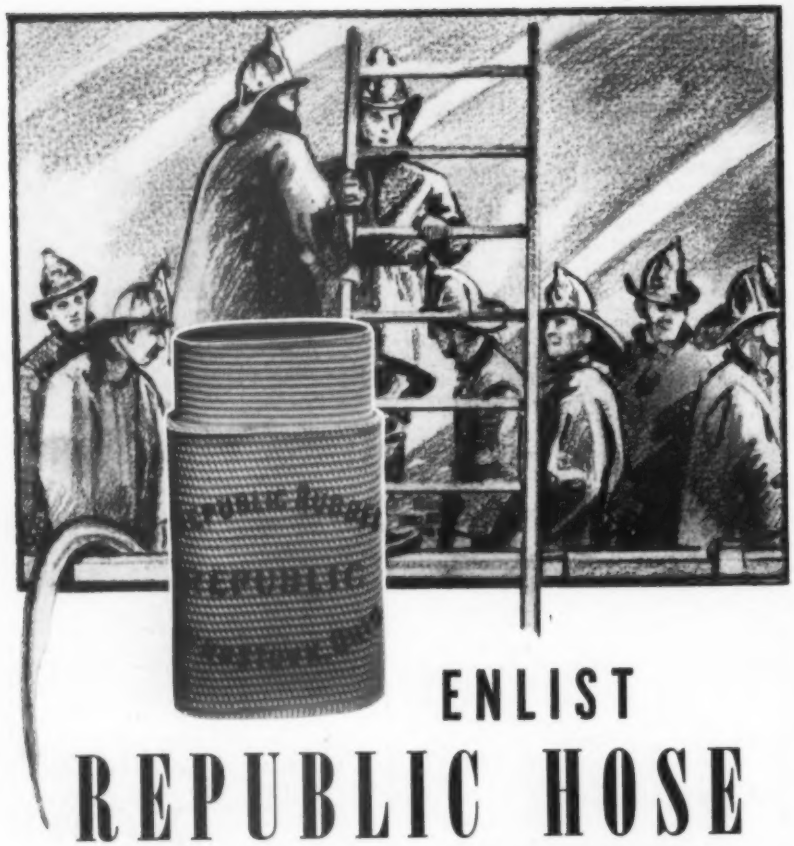

ENLIST

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FOR FIRE DEFENSE

Sturdy, long-lived Republic Fire Hose does heroic duty in the battle against flames. Built with an advanced construction that combines great strength with ease of handling, it consistently provides the most effective, dependable service under every type of abuse. The physical properties of its carefully selected and tested materials are permanently protected against mildew and rot by the Provar Process—an exclusive Republic formula.

REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, OHIO.

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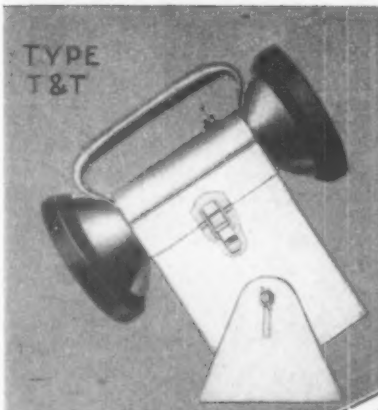


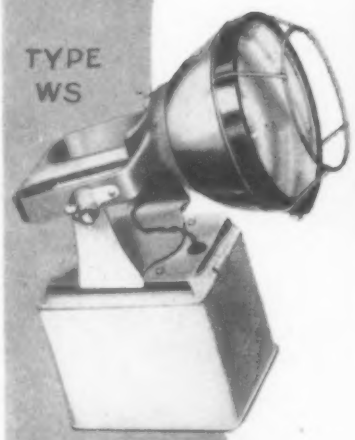
AND NOW THE "HOT-SPOT" FIRE DETECTOR

IT'S THE FIRST 5 MINUTES THAT COUNT IN FIGHTING FIRE

Speed with **"HOT-SPOT"** *Detectors that* **"Spot" Fire** *behind Walls*

Deputy Chief John F. McDonough and his aid, John W. McDonald, of the BOSTON FIRE DEPT.

SPOTTING HIDDEN FIRE WITH HIS "HOT-SPOT" DETECTOR



SPEED IN DRIVING AND AT FIRES THAT ONLY **MASTER-LIGHTS** CAN GIVE

Welcome to our booth at the I.A.F.C. Convention
SIT DOWN—REST—SEE for yourself

CARPENTER MFG. CO.
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MASTER-LIGHT MAKERS

Preparedness

PERHAPS never before in our national history has our security been so dependent upon our fire fighting forces. Destruction of America's homes and industries through fire would cripple our present defense undertaking. ***This must not happen.***

No matter whether the fire be large or small, whether it be Mr. Smith's garage or a vital aviation plant, whether it be caused accidentally or otherwise, it must be prepared for and defeated—***promptly.***

The responsibility for such preparation rests upon the fire prevention and fire fighting forces of this country. It would be timely for you to analyze your fire hose equipment ***now*** to make sure that your community is prepared to combat not only the usual fire hazards but also the extraordinary danger of multiple fires.

The investment value of fire hose can only be measured by the quality of its performance and its durability. Eureka excels in both. Eureka Multiple-Woven Fire Hose is the choice of outstanding fire departments everywhere because of its superlative performance under the most severe conditions and for its unusual longevity.

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MULTIPLE-WOVEN FIRE HOSE

1. Multiple-Woven Construction. Eliminates dangerous wriggling and writhing under hydraulic pressure . . . allows no dirt or dampness to collect between plies.

2. Smooth Interior Filler-Ply. Gives the rubber lining a smooth and level backing . . . no "washboarding" . . . instead a perfectly smooth waterway assuring minimum friction loss.

3. Improved Rubber Linings. 4 plies of specially developed *heat resisting* rubber . . . calendered into one homogeneous body . . . proved far superior by the Bomb Test—a scientific method of predetermining the aging characteristics of rubber goods.

4. Mildew Proof Fabrics. All fabrics used in Eureka Fire Hose are antiseptically treated to prevent the formation of mildew and rot. Treatment does not add weight to hose . . . is absolutely reliable . . . hose is clean and easy to handle.

For Greater Protection to Lives and Property

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EUREKA FIRE HOSE

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